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CLEAN AIR ACT OVERSIGHT—1980

HEARING

BEFORE THE

SUBCOMMITTEE ON
HEALTH AND THE ENVIRONMENT

OF THE

COMMITTEE ON
INTERSTATE AND FOREIGN COMMERCE
HOUSE OF REPRESENTATIVES

NINETY-SIXTH CONGRESS

SECOND SESSION

ON

GREATER FLEXIBILITY IN MEETING POLLUTION STANDARDS AND
ASPECTS OF THE PREVENTION OF SIGNIFICANT DETERIORATION

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CLEAN AIR ACT OVERSIGHT—1980

MONDAY, JUNE 16, 1980

House of Representatives,
Subcommittee on Health and the Environment,
Committee on Interstate and Foreign Commerce,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10 a.m., in room 2322, Rayburn House Office Building, Hon. Henry A. Waxman, chairman, presiding.

Mr. Waxman. This morning the subcommittee will conduct a clean air hearing on the bubble policy recently developed by the Environmental Protection Agency to allow greater flexibility in meeting pollution standards.

We will also consider aspects of the prevention of significant deterioration or PSD program intended to protect and enhance areas where air quality is good.

The bubble policy reflects a change in the traditional regulatory approach embodied in the Clean Air Act. Under the more traditional approach, States select a mix of emission limits to meet ambient standards. The bubble policy allows industry to choose its own emission limits with some important restrictions which we will focus on today.

According to EPA, the bubble policy will give industry greater opportunity and incentive to minimize the cost of pollution control requirements and develop innovative control technology. Industry believes the concept is sound but seeks relief from some of the restrictions.

The second part of the hearing concerns the PSD program adopted to assure that a decision to permit increased air pollution in clean air areas is made only after a careful evaluation of the air quality consequences.

This evaluation includes establishing a baseline of initial air quality through monitoring and modeling the impact of emissions from major emitting facilities against a statutory increment system. We will hear some different perspectives today concerning this portion of the PSD program.

This morning we begin with an industry panel composed of representatives from the Chemical Manufacturers Association, Council of Industrial Boiler Owners, Nipro, Inc. and Union Oil Co.

I would like to call forward Brent B. Mullis, vice president, manufacturing, Columbia Nitrogen Corp. and Nipro, Inc., Augusta, Ga.; George Carpenter, Chemical Manufacturers Association, Washington, D.C.; William B. Marx, Council of Industrial Boiler Owners, Fairfax Station, Va.; and Dr. Carleton B. Scott, Union Oil Co. of California, Los Angeles, Calif.; J. Bretton Braden, Santa Fe

Energy Co.; Gregory W. Moon, environmental specialist, oil and gas division, and Jerry D. Worsham II, corporate environmental engineer.

Before the panel begins I would like to recognize the ranking minority member, Dr. Carter.

Mr. **Carter**. Thank you, Mr. Chairman.

I am happy to welcome these witnesses here today as this subcommittee explores indepth some of the policies and implications of the Clean Air Act and its amendments.

I am proud that, as a member of this subcommittee, I could play a part in the enactment of the Clean Air Act Amendments of 1977. The primary purpose of this legislation, as stated in the act, is: "To protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population."

Today, as we hear the views of the private and public sectors concerning industry compliance with clean air standards, I hope that we can continue to keep the goals and purposes of that act in mind.

Thank you, Mr. Chairman.

Mr. **Waxman**. Thank you, Dr. Carter.

Mr. Carpenter, we would like to hear from you first if we might.

STATEMENTS OF GEORGE D. CARPENTER, CHAIRMAN, CLEAN AIR ACT REVISION TASK GROUP, CHEMICAL MANUFACTURERS ASSOCIATION, ACCOMPANIED BY DAVID W. CARROLL, ASSISTANT GENERAL COUNSEL; BRENT B. MULLIS, VICE PRESIDENT, MANUFACTURING, NIRPO, INC.; WILLIAM MARX, PRESIDENT, COUNCIL OF INDUSTRIAL BOILER OWNERS; AND CARLETON B. SCOTT, PH. D., ON BEHALF OF UNION OIL CO. OF CALIFORNIA, ACCOMPANIED BY J. BRETTON BRADEN ON BEHALF OF CALIFORNIA INDEPENDENT PRODUCERS ASSOCIATION

Mr. **Carpenter**. Mr. Chairman and members of the committee: I am George Carpenter, manager, air conservation, for the Procter & Gamble Co. in Cincinnati, Ohio and chairman of the Clean Air Act Revision Task Group of the Chemical Manufacturers Association.

With me is David W. Carroll, assistant general counsel of the Chemical Manufacturers Association. We are here to discuss the concept known as the bubble, the important role the bubble plays in achieving national air quality goals at the optimum cost, and some problems which are preventing it from being an effective tool for reducing some of the high costs the Clean Air Act places on American industry.

The Chemical Manufacturers Association is a nonprofit trade association whose 192 member companies produce more than 90 percent of this country's basic industrial chemicals at some 1,500 operating plants located in nearly every State.

The chemical industry is directly and significantly affected by the requirements of the Clean Air Act, as implemented by EPA. We are strongly committed to the act's dual purposes of protecting the Nation's air resources so as to promote the public health and welfare, and the productive capacity of its population, and we believe the chemical industry has established a significant track record of accomplishments in this area.

The diversity of the chemical industry's operations results in CMA member companies being affected by an equally wide variety of separate regulations under the Clean Air Act. Thus, CMA is especially interested in regulatory reform initiatives by EPA, such as the bubble policy, that serve to find ways to a cleaner environment with less costs, fewer delays, and less complexity to society. The Clean Air Act is an exceedingly detailed, rigid, and inefficient piece of legislation.

In addition, Federal and State implementation plan regulatory programs are very detailed and source specific which in many ways require more economically inefficient controls than a regulatory system which sets ultimate ambient goals and allows the States the flexibility to establish the most efficient mechanism of progressing toward these goals.

The significance of the bubble is that this is one area where EPA has made an effort to solve some of the problems brought about the basic inflexible nature of the Clean Air Act. However, in developing the bubble policy, the Agency has fallen into the same pattern as the act and has implemented a policy in a manner which is itself rigid and inflexible in many respects.

While we applaud the Agency's effort to develop more cost effective implementation of our Nation's clean air policy, we believe the Agency has stopped far short of reaching the potential of the bubble policy and has implemented so many needless restrictions that the use of the bubble is precluded in many cases.

The bubble concept focuses on the aggregate emissions rather than individual stack emissions as though a bubble had been placed over the whole plant. In its simplest form the bubble concept enables a source to determine the most cost effective way to attain the emission reductions necessary to attain air quality goals.

Another advantage of the bubble concept is that it can eliminate lengthy new construction permitting delays that contribute nothing to air quality.

There is some confusion surrounding EPA's recent policy announcements on the bubble policy, in large part due to the fact that there are actually not just one, but three different and distinct types of bubbles that must be dealt with under the Clean Air Act.

These three bubble types are: One, a retrofit—or existing source—bubble which applies to additional air pollution control equipment required on existing sources, two, an Asarco bubble that applies to new source performance standards, and three, an Alabama Power—or modification—bubble which applies to the permitting requirements for new construction at existing plants. I will discuss each bubble separately.

RETROFIT BUBBLE

EPA's policy statement of December 11, 1979, applied only to the retrofit bubble for existing sources. In this policy statement, EPA strongly recommends that States allow sources to install alternate controls in lieu of SIP imposed limits as long as these controls are equivalent in terms of air quality and as enforceable as the original State implementation plan limits.

READEX FICHE

To date, most controls required of existing facilities in order to attain or maintain the national ambient air quality standard, have been on a source specific basis. For instance, in the recent round of SIP revisions coming out of the 1977 Clean Air Act amendments, one of the required SIP revisions was increased control on specific types of sources.

Under an SIP revision, a chemical process might be required to reduce hydrocarbon emissions from a specific stack by, let's say, 25 pounds per hour. Using the EPA's retrofit bubble policy, a source might find it more economical to control another source of hydrocarbons within the plant.

Thus, EPA is encouraging States to allow the source to control these alternate emissions in lieu of the required specific emission point as long as the emission reduction and ambient effects are the same and are as enforceable as the emission reduction in the SIP.

While this bubble policy will find uses in some important applications on some very large and hard to control emission points, EPA has implemented several restrictions which will effectively preclude the use of the bubble policy unless the cost and energy savings are very large.

The chemical industry has a multitude of smaller sources which would be prevented from using the bubble under such conditions.

The single biggest barrier toward an effective working bubble policy is the requirement that the State implementation plan must be revised for each application of the bubble.

Thus, the source must convince a local or State environmental agency that a bubble is appropriate, the State must then formally request the revision from EPA, EPA must scrutinize the revision, announce the revision in the Federal Register, then wait at least 30 days for comments, and then hold public hearings, if requested, before approving or disapproving a specific application of the bubble.

This process itself typically takes at least 12 months, seldom ever less than 6 months, and requires enormous amounts of paper work and backup material.

Since an SIP revision is a complicated and time-consuming procedure for State and local agencies, it can be expected that many States will not be very receptive to a program with such restrictions.

EPA will penalize late compliance for not meeting existing control requirement regulations. EPA plans to penalize all late compliance not covered by a section 113 delayed compliance order and feels that these cannot extend past December 31, 1982. Since the SIP revision process can by itself consume well over 1 year, this requirement provides some degree of risks and uncertainty for sources applying for that bubble.

To compound the problem, a source must first agree to comply and then apply for the bubble. Thus, a source must begin engineering and purchasing along—delivery time equipment in order to protect its compliance commitment schedule on the existing regulations. Then the company will be required to pay contract cancellation charges if they receive approval to install alternative controls under the bubble policy.

CMA supports a system which would allow the States to implement the bubble policy, without case-by-case Federal intervention, similar to the States 'plans which have effectively managed the Clean Air Act programs permitting new and modified emission sources.

I will now discuss the *Asarco* case.

A second issue is whether the flexibility of the bubble concept can be extended to new source controls. In the case of *Asarco, Inc.* v. *Environmental Protection Agency,* the court ruled that a bubble could not be used to escape the requirements of an applicable new source performance standard.

Thus, the Asarco or NSPS bubble is no longer operative. CMA urges this subcommittee to give future consideration to how the act can be amended to allow the bubble concept to provide the flexibility that would allow innovative technology to met the emission limits in a cost and energy efficient way.

Let me move to the Alabama Power bubble.

Industry obtained the right to use a bubble to curtail lengthy and costly permitting requirements, where there is no impact on air quality, as a result of the U.S. Court of Appeals for the District of Columbia Circuit's decision in the Alabama Power PSD litigation.

The resulting modification bubble allows the source desiring to modify or expand an existing plant site to install controls on existing emissions such that there is no net increase in emissions after the modification. Let us suppose that a chemical plant would like to double its capacity. A resulting emission increase from such a modification would be subject to the permitting costs and delays of the PSD process which can take up to 3 years and cost several hundred thousand dollars.

In order to avoid such a process, the company alternatively might agree to reduce emissions from its existing process by an amount at least equal to the emissions from the new construction, and thus not have to proceed with a lengthy PSD permit process.

This modification bubble has great significance to industry in order to avoid the delay costs of the PSD permitting program and the court of appeals ruling in *Alabama Power* that unjustly subjects modifications to existing plants to much harsher requirements than new, grassroots sites.

Until the Clean Air Act is amended to eliminate this court imposed inequity, the bubble is the only way an existing plant can modernize or increase capacity without the lengthy delays of the PSD process.

It is interesting to note, that the modification bubble created by the court in *Alabama Power* does not require a SIP revision with each application, as does EPA's retrofit bubble, but only a determination of no net emission increase by the source and the State.

To summarize our comments, CMA believes that the bubble concept is equally useful as a cost-effective means of obtaining and maintaining air quality standards as expeditiously as possible under State implementation plans.

We therefore fully support EPA's announced policy of encouraging use of the bubble concept to provide existing plants with alternative emission reduction options that are more efficient and less expensive than current regulations. We would encourage further consideration and broader application of the bubble under the Clean Air Act.

However, we are disappointed that EPA, although apparently recognizing that the bubble concept provides both the most economical pollution control and a strong incentive for technological innovation, has nevertheless chosen to impose many unnecessary restrictions which severely limit its usefulness.

This completes our formal statement. At this time we are willing to answer any questions.

[Testimony resumes on p. 18.]

[Attachment to Mr. Carpenter's statement:]

MANUFACTURING CHEMISTS ASSOCIATION
COMMENTS ON EPA'S
POLICY STATEMENT FOR ALTERNATIVE EMISSION REDUCTION OPTIONS WITHIN STATE IMPLEMENTATION PLANS

44 Fed. Reg. 3740 (January 18, 1979)

The Manufacturing Chemists Association ("MCA"), a nonprofit trade association whose member companies develop and produce the great majority of basic industrial chemicals used in this country, submits these comments in response to EPA's "Recommendation For Alternative Emission Reduction Options Within State Implementation Plans", published at 44 Fed. Reg. 3740 (January 18, 1979).

MCA has consistently advocated use of the bubble concept as a rational, efficient and economical means of maintaining the improving air quality. In our comments of February 15, 1979, on EPA's Offset Ruling, (copy attached hereto), we stressed the utility of the bubble concept in providing for growth and development of new and existing sources in nonattainment areas without the necessity for costly and wasteful regulatory review procedures that would not benefit air quality. As we pointed out in those comments, and in our previous comments on EPA's PSD regulations, there is simply no need to impose a heavy regulatory burden, with accompanying expense and delay, on major new sources and souce modifications which, because of intrasource offsets, do not increase net emissions, and which will often improve and enhance air quality.

We believe that the bubble concept is equally useful as a cost-effective means of obtaining and maintaining air quality standards as expeditiously as possible under State Implementation Plans. We therefore fully support EPA's announced policy of encouraging use of the bubble concept to provide existing plants with alternative emission reduction options that are more efficient and less expensive than current process-by-process controls.

However, we are disappointed that EPA, although apparently recognizing that the bubble concept provides both the most economical approach to pollution control and a strong incentive for technological innovation (44 Fed. Reg. 3741), has nevertheless chosen to impose many unnecessary restrictions which severely limit its usefulness. When the bubble policy was first announced in EPA's press release of December 21, 1978, and accompanying memorandum from the Administrator to Directors of State Air Programs, it was touted as a "new money-saving approach", "created in response to President Carter's request that regulatory agencies find ways to reduce the burden of government regulations," that would "provide a positive economic incentive to industry to develop better, innovative pollution technologies and practices . . . ." While the bubble concept undoubtedly has the potential for achieving state cleanup requirements effectively, and at far less expense than any other means, the policy EPA has in fact adopted falls far short of its original promise. The bubble concept would allow full intrasource emission tradeoffs to be made as a matter of sound business judgment without compliance with extensive regulatory requirements, so long as there is no net increase in emissions from an operating plant. That is not the policy EPA has adopted--in fact EPA does not even refer to its proposal any longer as implementing the "bubble" concept. EPA's is a far more restricted policy, without the bubble's anticipated economic benefits. If EPA is seriously interested in reducing compliance costs to industry without imposing a massive additional workload on already overburdened state permitting authorities, we suggest that full implementation of the bubble concept is the way do do so.

I. The Bubble Concept Requires That A Single Set Of Emission Limitations For Criteria Pollutants Be Set For Each Industrial Operating Complex

The usefulness of the bubble concept depends on the fact that it provides a single overall set of emission limitations for criteria pollutants for an entire industrial operating complex, and leaves it to the operator to develop the most cost-effective mix of pollution controls to comply with those standards. EPA's Policy Statement, while accepting in theory the concept of a single set of emission limitations, (see 44 Fed. Reg. 3741), ignores it in practice.

For example, Section C.2.b of the Policy Statement provides that use of the bubble concept will not be approved unless each regulated "source"[1/] has a specific, enforceable emission limit tied to enforceable testing techniques. (44 Fed. Reg. 3743). MCA believes that while the bubble should in theory encompass the whole operating complex, permitting offsets between emission points within the entire complex, enforceable emission limits should be placed only on those point sources actually involved in the tradeoff. It is fundamentally wasteful and inefficient to require individual emission limits on all other emission points in the complex whose emissions will not change as a result of the offset. Since the remainder of the plant is already subject to, and presumed to be in compliance with SIP requirements, there is no point in forcing a source owner to undertake the difficult and time-consuming job of monitoring and quantifying emissions from all other point sources not involved in the particular offset.

[1/] For purposes of Section C.2.b, EPA uses the term "source" to mean each "emission point". EPA's use of the terms "source" and "facility" is confused and inconsistent. It is also inconsistent with EPA's definition of the terms for purposes of PSD and nonattainment. See 40 C.F.R. §§ 51.24(b)(4), 52.21(b)(4), 51.24(b)(5), 52.21(b)(5), 43 Fed. Reg. 26383, 26404 (June 19, 1978); Offset Ruling Sections II.A.1, II.A.2, 44 Fed. Reg. 3283 (January 16, 1979).

In addition, the requirement in Section C.1.c of the Policy statement that there can be no intrasource offsets of pollutants within the same category "with different health or ambient air impacts", substantially limits and in many cases nullifies the effect of the bubble concept. Even in situations where offsets are not entirely ruled out under Section C.1.c., it may be impossible to establish equivalency to the degree required by EPA in any other way than to show that the type and source of the pollutants are identical. Since chemical processes differ greatly in volume and type of emissions, and a single chemical plant may contain upwards of fifty separate operational processes and numerous emission points, such a showing might not be possible in many cases.

That is a far cry from the result originally projected by EPA when it announced the bubble policy in December, 1978. The following example was given in EPA's press release of the application of the "new approach":

> "for air pollution control at a petroleum refining and petrochemical complex: if it costs the refinery $50 per ton to control smog-forming hydrocarbons from storage tanks versus thousands of dollars to control the same pollutant from leaks, equipment defects or other 'fugitive emissions,' the plant could save money by controlling more pollution from the storage tanks and less from 'fugituve" leaks."

It is questionable whether under EPA's current proposal, "equivalency" of emissions could be demonstrated in such a case.

EPA's Policy Statement, as presently drafted, is fundamentally inconsistent with EPA's own NAAQS designations. National ambient standards have been established only for certain major categories of pollutants, not for every conceivable individual pollutant. Both the PSD and nonattainment provisions are based on those category designations, which reflect a determination of the amount of regulation necessary to protect public health and welfare. Requiring greater identity of pollutants for offsets than NAAQS designations is unnecessary and furthers no legitimate purpose of the Act. If EPA really believes that pollutants in the same category have sufficiently different effects on health and welfare to preclude offsets it should also revise the NAAQS accordingly. In the interim, it should not deny credit for intrasource offsets on the basis of a wholly subjective and standardless determination that pollutants within a designated category are not "equivalent".

The Policy Statement is also inconsistent with EPA's treatment of all non-methane hydrocarbons as eventually equally photoreactive in Section IV.C.4 of its Offset Ruling (44 Fed. Reg. 3284, June 16, 1978) and its Policy Statement of July 8, 1977 (42 Fed. Reg. 34314). We believe that all non-methane hydrocarbon emissions that have not been listed as hazardous pollutants should be freely tradeable for purposes of the bubble policy.

Furthermore, we do not believe that EPA is authorized or justified in using the bubble concept as a means for avoiding rulemaking procedures under Section 112 of the Act. Section 112 was designed to deal with the problems of containing potentially hazardous pollutants within safe levels. EPA bears the burden, under proper rulemaking procedures, of demonstrating on the basis of adequate scientific and medical data that a particular pollutant should be so designated. If a pollutant, such as fine particulate matter, has not been made subject to Section 112 rulemaking procedures, EPA should not prevent it from being offset against any other pollutant of the same category.

II. Advance Demonstration Or Equivalency

One of the primary advantages of the bubble concept over stack-by-stack controls is that it gives a major emitting facility far greater operating flexibility, as well as substantial incentive to develop innovative control technology. EPA's Policy Statement limits that flexibility by requiring that the source demonstrate in advance to the state that its proposed intrasource offsets will be "equivalent in pollution reduction, enforceability, and environmental impact to existing individual process standards." (44 Fed. Reg. 3741).

By shifting the burden from EPA and the states to individual sources to demonstrate the identity of health and welfare effects of individual pollutants within the same category, EPA would effectivaly destroy the bubble in situations where sufficient scientific and medical data to do so is lacking. Considering that even for the criteria pollutants, which have been regulated for years, full medical data to establish their "environmental impact" is not yet available, that burden is an extraordinarily difficult one to meet. For example, there are hundreds of separate hydrocarbons with widely varying photoreactivity. Industry has neither the technology nor the resources to demonstrate equivalency in photoreactivity among such emissions. As discussed above, we do not believe EPA should preclude or limit offsets in such cases where it cannot, and has not demonstrated under NAAQS or Section 112 of the Act, that any harm to the environment would result from such offsets. Within those established parameters, industry can, and will find it cost effective to demonstrate equivalency of emissions for tradeoffs.

III. Stays Of Compliance

While we understand EPA's concern that the bubble concept not be used merely as a device to gain additional time for compliance with existing emission limits, it is unrealistic to expect "plant managers to develop innovative control strategies" (44 Fed. Reg. 3741) on the same time schedules required for compliance with existing regulations. As a recent commentator on the issue stated, "If a company has to press ahead with investments to meet stack-by-stack regulations, why should it expend the effort to come up with alternatives after the fact?" [1/]

In fact, EPA's Policy severely penalizes industries that commit substantial resources to "innovative thinking" only to have EPA later reject such proposals. Section C.2.d. of the Policy Statement (44 Fed. Reg. 3743) requires that sources for which alternative emission proposals "are accepted by EPA for consideration" agree in writing:

> "not to seek stays of compliance with the existing requirement or any avoidance of sanctions (e.g. penalties) if the alternative proposal is disapproved, challenged, or otherwise delayed or not made effective."

If EPA is seriously interested in encouraging innovative approaches to control technology, we suggest that it delete

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[1/] Peter Nulty, "A Brave Experiment In Pollution Control", Fortune Magazine, February 12, 1979, at 123 (copy attached).

this requirement and follow the approach that Congress adopted in Section 111(j)(1)(A) of the Act of allowing reasonable further extensions of time for the development and implementation of innovative alternative emission controls.

IV. Use Of The Bubble For Enforcement Purposes

EPA's attempt to turn the bubble concept into an enforcement tool by conditioning its availability on compliance with existing SIP requirements, an EPA approved compliance schedule, or a court decree "which EPA has found to be satisfactory", is not authorized by the Act. (44 Fed. Reg. 3743). We feel that it is arbitrary and unfair to further penalize industrial plants attempting to come into compliance with current requirements by denying them one of the most efficient and cost-effective methods of controlling emissions. EPA's policy should be to encourage, not prohibit use of the bubble in such cases.

Nor do we believe that EPA's decision to withhold use of the bubble until a source has agreed to EPA's "resolution of penalties issues and other sanctions" (44 Fed. Reg. 3743) is justifiable. If a plant otherwise qualifies for intrasource offset credit, the right to such credit should not be used as a device to force agreement to EPA's assessment of civil penalties for prior violations.

CONCLUSION

The bubble concept has great potential for assuring the attainment and maintenance of ambient air standards expeditiously and in the most cost-effective way. If EPA is seriously interested in reducing the burdens of government regulations and providing industry with positive economic incentives to improved control technology, it should both allow and encourage full implementation of the bubble concept by the states. We urge EPA to revise its Policy Statement to do so.

Mr. WAXMAN. Thank you very much for your testimony. I would like to have each of the witnesses on the panel testify and then we can question all of you together.

STATEMENT OF BRENT B. MULLIS

Mr. MULLIS. Mr. Chairman, I am Brent Mullis, vice president, manufacturing, of Nipro, Inc.

We are a member of CMA, although our testimony is not directly linked.

Nipro is a chemical manufacturing company which requires natural gas and cyclohexane, a petroleum derivative, for manufacturing the precursor of nylon. Practically ever phase of our operations are restricted by environmental regulations.

My presentation before you today is limited to two examples of how the Clean Air Act and more specifically new source performance standards (NSPS) are working counter to their intended goal of a cleaner environment and are frustrating our country's current need for energy conservation.

Before I begin with my presentation, I would like to stress the point to the members of the subcommittee that we are not opposed to the goals of a cleaner and healthier environment. The safety and welfare of our employees and the community in which we operate is one of our primary concerns.

However, our company, as well as the Nation as a whole, has other needs which must be balanced with those of a cleaner environment. I am referring to our economy and our current dependence upon imported oil.

I, as well as most of my manufacturing colleagues, am of the opinion that we as a nation in our zeal to provide a cleaner environment have woefully overreacted and have overregulated industry with emission standards that in most instances are unreasonable and detrimental to the overall welfare of our country.

Beginning with the Clean Air Amendments of 1970, and, particularly, the regulations promulgated under those amendments, there has been demonstrated an insensitivity to economic reality. Additionally, we are now in the midst of an energy crisis which was not foreseen when environmental regulations were first issued, and must now be considered if we as a nation are to survive.

The new source performance standards for fossil fuel fired steam generators are an example of this oversight by the legislative and administrative branches of our Government. The first example I would like to present is a case where as a result of the new source performance standards we operate boilers which pollute more than necessary, consume more fuel oil than necessary, and increase the price of the product.

Nipro, Inc. is the largest merchant manufacturer of caprolactam in the country. Caprolactam is a petroleum based product which is in turn used in the manufacture of nylon-6, a synthetic fiber, found in such products as carpeting, draperies, tires, molding, fishing lines, and plastic parts.

In the years 1965, 1971, and 1976 the company built three increasingly larger manufacturing plants to meet the Nation's increasing demand for synthetic fibers. The last facility was originally designed to have an oil-fired boiler with a heat capacity of over 550 million Btu's per hour.

As a result of the new source performance standards, the company now has three less efficient boilers which pollute more and consume more fuel than the original design.

The new source performance standards regulations limiting the amount of SO_2 which can be emitted from fossil fuel fired steam generators above 250 million Btu's per hour heat input reflect the Clean Air Act philosophy of forcing pollution generating facilities to implement the best available control technology.

Companies like ours faced with steam generating needs should obviously opt for the most economic and efficient means available. For energy requirements in excess of 250 million Btu's per hour heat input, the factors of relative boiler costs and efficiencies, fuel availability and costs, and scrubber costs and efficiencies must be considered.

Because of these factors, companies such as Nipro, Inc., will and do choose to string together boilers below 250 million Btu's per hour heat input until the additional costs associated with the implementation of scrubbers and/or low sulphur fuel are less than the increased costs associated with additional boilers operating at lower efficiency. This is illustrated graphically in appendix I. Due to the high cost of scrubbers and low sulphur fuel, economics dictate a less efficient, more polluting option.

At the time Nipro, Inc.'s, third manufacturing plant was in its design and initial construction phase, there were three questions which eventually affected the course of its operation: the applicability of new source performance standards—I might mention in 1972-73 that was under a considerable amount of discussion both within EPA and among the industry—whether a variance procedure was possible if new source performance standards did apply, and the availability and cost of low sulfur fuel oil.

In initial conferences with State environmental personnel, it was agreed that the goals of efficient operation, pollution control, energy conservation, and economics would be served by permitting the new boiler to operate at its original design capacity, and construction was begun hoping that something would be worked out.

In August of 1976, after construction of the boiler was nearly completed, it was finally determined that new source performance standards would apply, a variance procedure was not available and low sulphur fuel oil was economically prohibitive.

Considering the prohibitive cost of $2.9 million for a scrubber—compared to $1.375 million for a 250 million Btu per hour package boiler in 1979—the company was forced to derate the new boiler to below 250 million Btu's per hour heat input and implement two package boilers which had been purchased earlier for standby service.

These package boilers have a heat input of 150 million Btu's per hour and are approximately 6.41 percent less efficient than the large field erected new boiler.

As a result, not only have pollution emissions increased for the new plant, but also additional energy is consumed and industry costs have increased. In this one instance, the increases in emissions are: particulates, 135 tons per year; NO_x, 592 tons per year;

SO_2, 298 tons per year; and an additional three-quarters of a million gallons per year of fuel oil is consumed.

Considering the consequences of this problem spread nationwide, the detrimental effects to our environment and economy are very significant.

State officials have agreed with the company that operation of the new boiler at its original design capacity is the most reasonable and beneficial operation of the facility, but they lack the legal authority to allow it to operate at its potential.

In August of 1977, an application to operate the new boiler at its original design capacity was submitted on the legal basis of the bubble theory as it then existed in EPA regulations.

At that time, EPA regulations provided that a physical alteration of an existing source would not result in a modification which triggered new source performance standards review if there was no net increase in pollution emissions. Our derated boiler constitutes an existing source under the regulations.

For purposes of a modification to existing sources, a stationary source was deemed to be one or more facilities. Consequently, the company could have upgraded the boiler and shut down the package boilers with a net decrease in pollution emissions and, if the derated boiler was considered as part of an existing source, new source performance standards review would not have been necessary.

However, on January 27, 1978, the U.S. Court of Appeals for the District of Columbia held in *Asarco* v. *EPA* that the definition of "stationary source" must be limited to a single facility. This decision removed the bubble theory from new source performance standards review and eliminated the legal basis for the company's application to upgrade. As a result, the application was withdrawn on March 6, 1978.

The company's efforts to upgrade the boiler were renewed in late 1979 following the decision entered in *Alabama Power Co.* v. *Costle*, and the policy announcements by EPA favoring increased use of the bubble theory.

It was the company's hope that the increased importance and concern over energy conservation and the insertion of the bubble theory into prevention of significant deterioration permit review, as required by the Court of Appeals for the District of Columbia in *Alabama Power*, had created an atmosphere more receptive to the company's objective.

However, EPA was still constrained by the court's interpretation of the definition of stationary source, as interpreted in *Asarco*, and was unable to apply the bubble theory to new source performance standards review. This last effort at administrative relief was rejected on January 8, 1980.

Generally, the solution to this problem and other problems presented by the Clean Air Act is for Congress and the administration to be more sensitive to the economic consequences of the present regulations and to provide industry with the opportunity to implement innovative technology that is consistent with the national goals of a clean environment and energy conservation.

Specifically, two possible approaches to accomplish this end would be the incorporation of the bubble theory concept or a variance procedure into new source performance standards under the Clean Air Act.

It has been brought to my attention that the new section 204 of title II in the Powerplant Fuel Conservation Act of 1980 now pending before the House would allow modifications to industrial boilers which reduce energy requirements without increasing the overall emissions from a manufacturing plant.

I have been advised that section 204 of title II will hit directly at the heart of this problem and would reverse in part the ruling in *Asarco* against the bubble theory.

I would like to stress as strongly as possible the importance of such legislation, not only for my company, but for all companies and the Nation as a whole.

By presently enforcing inflexible emission standards based on developing technology, which in some cases is unreliable, the present laws have in this instance not ony created more pollution and the wasteful consumption of valuable fuel oil, but have also fueled inflation.

The second and last example of how the current regulations are frustrating industry's ability to innovate technological changes which further national goals is our pending consideration of a cogeneration plant.

The Ralph M. Parsons Co. has just completed a feasibility study for the construction of an alternative fuel source burning facility which would furnish the process steam requirements while cogenerating electric power to meet our manufacturing needs.

In spite of the obvious desirability of such a facility, the additional costs associated with the required pollution control equipment make the construction of such a facility infeasible, appendix II.

Of the major engineered equipment, the pollution control costs represent 36 percent of the total outlay. Since this percentage of costs is spread throughout the bulk materials and auxiliary systems as well as intangible costs, a facility that would otherwise cost $100 million now costs a total of $135 million.

In regard to the effect on economic feasibility, the required pollution control equipment will have no effect on the annual cost savings, but will increase the annual cost of operation by at least $5 million.

The net result is the conversion of a possible project with an after-tax return on investment of 7 percent into an infeasible and unacceptable project with an after-tax return on investment of only 3 percent.

I think this problem demonstrates how the current rigid technology-based regulations do not respond to economic reality nor do they balance our Nation's needs for energy conservation.

Under the current regulations, our company would receive no credit for the fact that if this cogeneration plant were constructed the existing boilers would be shut down and all of their emissions would be eliminated. The company is located in an attainment area which meets all national ambient air quality standards.

It seems inconsistent to me for the Government to have one program under prevention of significant deterioration which allows the use of the bubble theory and is based on a reasonable trade off between increased pollution emissions and industrial growth on the one hand and on the other an inflexible and stringent new source performance standards program which simultaneously bars use of a trade off and prevents a company from building a cogeneration plant that serves the best interests of the company and the Nation.

I propose that the solution of this problem would be the incorporation of the bubble theory concept in new source performance standards. In addition, EPA should in any event issue separate standards for sources such as a cogeneration plant which are designed to meet the needs of energy conservation.

I hope that my testimony has helped this subcommittee to recognize that Government cannot regulate a society and be mindless of the economic consequences.

A profound need exists to substitute flexible economic incentive systems for the current rigid, technology-based regulations that specify exactly how companies must comply. Such incentives actually aid the Government by providing their own penalty for unwanted action.

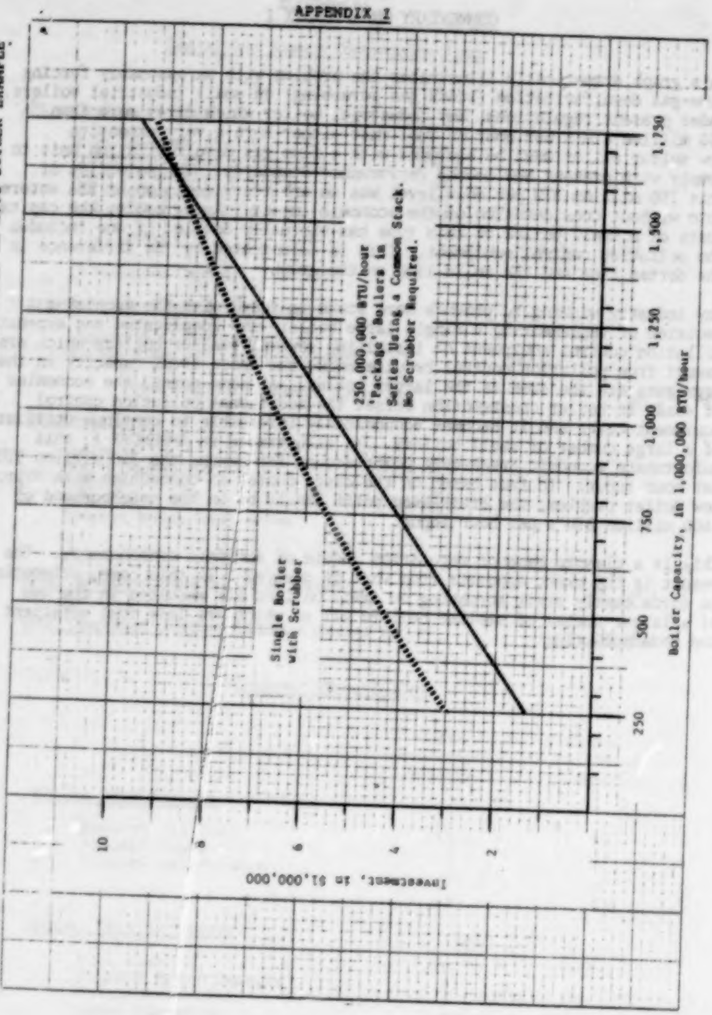
Regardless of the legislative approach taken, Federal and State legislative bodies must recognize that a problem does exist. To be dogmatic and insensitive to the technological and economic realities that face industry is at the very least a disservice to our country. To take the position that regulatory agencies are aware of all the problems in this highly technical area and, moreover, know the only possible solutions is likewise a narrow minded and detrimental view.

I would like to thank the chairman, Mr. Waxman, and the other members of the subcommittee for the opportunity to appear before you today. I would be pleased to answer any questions you or any members of the subcommittee may have.

After the other testimony, and I refer you for an economic summary to appendix II which explains why because of the pollution regulations we are going to be unable to build a facility for coal conversion in our plant.

[Attachments to Mr. Mullis' prepared statement follow:]

APPENDIX I



ECONOMICS OF BOILER WITH SCRUBBER VS. SMALLER BOILERS WITHOUT SCRUBBERS BASED ON N003 BOILER EXAMPLE

COMMENTARY ON APPENDIX I

This graph dramatically illustrates the problem with unreasonably forcing flue-gas desulfurization (stack gas scrubbing) on small industrial boilers. Under present regulations, any industrial boiler which fires more than 250 million BTU's per hour of fuel must either burn a very expensive low sulfur oil or must be equipped with a flue-gas desulfurization unit to comply with present New Source Performance Standards. The selection of this 250 million BTU per hour level was an arbitrary decision by EPA entered into without consideration of the economic impact. As a result, the capital costs of a small boiler of this type has virtually doubled if one includes the pollution control equipment. This is illustrated by the difference in the dotted line and the solid line on the graph.

Any industry wishing to produce more steam is faced with the agonizing decision of implementing a single large boiler with complicated and expensive pollution control equipment or installing several smaller boilers which are exempt from pollution control requirements, but whose total capacity in the aggregate are the same as the larger boiler. At some point, the economies of scale in boiler construction offset the additional pollution control equipment costs and it becomes economically infeasible to continue utilization of a large number of small boilers. As illustrated in APPENDIX I, this unfortunate economic break-even point occurs far beyond the 250 million BTU per hour input. In fact based on the costs quoted in connection with Nipro's new Boiler problem, the break-even point should be in the neighborhood of 1600 million BTU's per hour input.

This is a classic case of regulation devoid of economic consequences. The result is the exact opposite from what is desired. In this case, attempting to force costly stack scrubbing on small boilers has resulted in the use of a larger number of smaller boilers all of which are less fuel efficient and more polluting.

APPENDIX II

Capital Cost Summary Cogeneration Plant

Major Engineered Equipment:			
Steam Generator (Boiler)	24 MM $		
Electrostatic Precipitator (P.C.)	7 MM $		
Stack Gas Scrubber (P.C.)	7 MM $		
Ash Handling (P.C.)	2 MM $		
Turbine Generator Set	5 MM $		
Total		45 MM $	
(% Pollution Control. . . . 36%)			
Bulk Materials & Auxiliary Systems:			
(Support Both Pollution Control and Non-pollution Control Equipment:		29 MM $	
Total Tangible Equipment Costs			74 MM $
Intangible Costs:			
Indirects	6 MM $		
Eng. & Construction	12 MM $		
Start-Up	2 MM $		
Escalation	29 MM $		
Interest During Construction	12 MM $		
Total		61 MM $	
Total Investment (With Pollution Control)			135 MM $
Total Investment (Without Pollution Control 36%)			100 MM $

Economic Feasibility

	With Pollution Control	Without Pollution Control
Annual Cost Savings: (MM$/yr.)		
Reduced Oil Cost	43	43
Reduced Power	8	8
Reduced Maintenance	2	2
	53	53
Annual Cost Increases:		
Coal Cost	19	19
Standby Power Service	3	3
Maintenance (6%)	8	6
Other Variables	1	1
Operating Staff	1	1
Depreciation	13	10
	45	40
Before Tax Earnings	8	13
Return on Investment	6%	13%
After Tax R.O.I.	3%	7%

Mr. WAXMAN. Thank you very much, Mr. Mullis. We appreciate your testimony.

Mr. Marx.

STATEMENT OF WILLIAM MARX

Mr. MARX. In the interest of time, Mr. Chairman, I will go through my statement and paraphrase, picking out some of the highlights.

Good morning. I am William Marx, president of the Council of Industrial Boiler Owners (CIBO) a broad-based association of 39 industrial boiler owners and equipment suppliers covering 15 major standard industrial classification (SIC) industries, exclusive of public utilities. CIBO was formed to encourage the maximum exchange of relevant industrial information among its members and between industry and government so that public policy in the fuel utilization and environmental areas is realistic and supportive of individual and collective economic integrity.

I am here to express CIBO's views of the new source performance standards (NSPS) program for industrial boilers under the Clean Air Act and our concerns with the reciprocal relationships between this act and the 1978 Powerplant and Industrial Fuel Use Act. This statement is based on the aggregate experience of our 39 member companies.

INTRODUCTION

CIBO believes that any emissions standards program should follow three basic principles:

First, in the utility industry the boiler provides all the raw material for production of a primary product, electricity; in an industrial facility, on the other hand, steam is of secondary importance to the product made by the facility;

Second, in the utility industry there is broad uniformity of design and operation; in the industrial sector one finds diverse designs, types, sizes, applications and operating conditions;

Third, in the utility industry there are consistent steam loads; industrial boilers, however, often are subject to varied load demands, rapid load fluctuations, and seasonal demand variations;

Fourth, in the utility industry there are base load, intermediate range, and peaking boilers, as well as an intercompany grid, to provide continuity of production; in industry there is comparatively little redundancy, except in certain nonenergy intensive industries.

The criteria and procedures used by industry to evaluate the cost of emissions control on a rational economic basis must be understood in order to promote government policies which are designed to encourage and accelerate industry investment in better emission controls. For example, industrial companies which have the most experience with flue gas desulfurization report that such systems add $15 to $20 per ton to the cost of coal burned. This illustrates the need for a clear, consistent, and equitable procedure to weigh this type of incremental cost against identifiable incremental benefits derived. American industry and the consumer cannot afford inordinate control costs of this magnitude.

Clean Air Act regulations must provide industry with sufficient time to gain real operating experience with new commercial systems in order to avoid economic loss from production interruptions due to unreliable equipment. There is an appreciable timelag between initial demonstration and ultimate commercial acceptance of new emission control technologies.

The tendency of EPA to apply utility industry data and criteria to the industrial boiler program must be avoided because there are basic differences in the economic importance, design, and operation of industrial and utility steam plants. These differences are:

Because of the foregoing and the absence of a grid system, such as the utility industry can rely on, industry needs a higher degree of equipment reliability and availability than the utility industry; this includes both the steam generating and emission control systems.

This is underscored by the fact that many industrial companies insist steam generating equipment be capable of operating with only a 3- to 5-percent forced outage rate.

The new source performance standards industrial boiler program is critical for a number of reasons as follows:

It will have a major impact on the relative quantities of coal, oil, and gas used by industry;

It will influence the development and commercialization of advanced energy technologies for the combustion of coal and other fuels;

It will affect the introduction of energy-conserving technologies, such as cogeneration and waste fuel utilization, into the industrial sector; and

It will influence future industrial investment and growth, the demand for energy and the overall economy, by the relative stringency of the emission control standards.

For example, uncertainties in the marketplace generated by the vagaries of Federal fuel use and environmental policies have played a major role in depressing the market for new boilers to less than half its normal rate in the past several years.

Based on this, CIBO recommends the following with respect to implementation of the new source performance standards program:

There should be one performance type standard for a specific primary fuel and given unit size, applicable to all industrial plants, regardless of the product manufactured in the facility; design standards should not be proposed unless a performance standard is clearly not feasible. Performance standards are simple, practical and fair, and allow the user to select the firing equipment/boiler-control system best suited to his needs.

I think the Nipro testimony was illustrative of this point.

There should be a sliding scale of increasing allowable emissions as design unit input decreases. Boilers of different steaming capacity and fuels may have significantly different physical design parameters such as excess air, heat release rate, furnace volume, fuel feed, and ash removal methods, et cetera, which affect emissions and the applicability of specific emission control technologies; economic feasibility also can vary significantly.

An extra degree of flexibility should be accorded to emerging technologies, such as fluidized bed combustion. The operating problems and supporting economics must be better defined and understood to encourage and accelerate their acceptance by industry. Therefore, initial installations of an emerging technology should be allowed additional time to achieve compliance where this action will not seriously impact the ambient air quality standards.

Consideration should be given to the application of this concept to various alternate fuels. This might stimulate greater use of commercially unmarketable industrial waste fuels, where there often is inadequate emissions data.

In view of the nonroutine nature of many industrial operations, long-term averaging times for emissions measurement are most appropriate. Only continuous monitors can generate data for long-term averaging, but the reliability of today's monitoring equipment is questionable, and their use poses technical and economic problems. Thus, consideration of continuous monitoring should be deferred until reliable commercial monitors are developed, preferably through a stepped-up effort by EPA.

Percent reduction of emissions should not be required in the industrial boiler new source performance standards program until a clear incremental cost/benefit justification has been established. Because of relatively low-load factors and seasonal operations in many industrial operations, we believe the environmental impact of aggregate industrial boiler operation is minimal.

Projections of future boiler installations as to fuel use patterns, energy consumption, and specific emission loads must be carefully developed and analyzed, especially in light of the impact of the Fuel Use Act.

Consideration should be given to the concept of regulating sources by quantity of emissions per unit of useful energy output, rather than heat input. This would encourage cogeneration and other technologies that improve combustion efficiency, and save precious fuels.

The benefits of emission control increments should be weighed against the increased energy consumption; certain control techniques are significantly energy intensive.

Maximum use of alternate, renewable, or waste fuels, that is, wood, municipal refuse, et cetera, should be encouraged.

The addition of cogeneration to an existing boiler system should be permitted without change to the applicable emission limits provided the source was in compliance before cogeneration was added.

In closing, I would like to stress the Fuel Use Act and its relationship to the Clean Air Act.

A review of the relationship between the Fuel Use Act and the Clean Air Act is of paramount importance. This is illustrated in the Fuel Use Act where, for example, Congress provided environmental exemptions for those situations where the requirements to use coal or alternate fuel cannot be met because of environmental restrictions. However, DOE has established procedures through its regulations which allow it to veto Federal, State or local environmental agency determinations that coal or alternate fuels cannot be burned. Therefore, the expertise and knowledge of environmental officials with respect to the dangers of utilization of certain fuels, in specific situations can, in effect, be ignored.

In other words, what we are saying here, is that, in many instances, it seems the Fuel Use Act is overriding the objectives of the Clean Air Act.

Analysis of the above issues should help guide the next Congress in a thorough evaluation of the 1977 act, its administration and the overall effect on industry. Many of the concerns we have raised may require legislative changes to the Clean Air Act. CIBO members will continue to monitor the development of clean air policy, and assemble data and case histories from its 39 members in order to provide Congress the benefits of this experience.

We appreciate this opportunity of appearing before the Subcommittee on Health and the Environment.

Mr. WAXMAN. We appreciate your statement.

Dr. Scott.

STATEMENT OF CARLETON SCOTT, PH. D.

Dr. SCOTT. I am Carleton Scott, director of the environmental sciences department, Union Oil Co. of Calfornia. With me to my left is Mr. J. Bretton Braden, environmental coordinator for Santa Fe Energy Co., representing the California Independent Producers Association.

We are here to update the subcommittee on testimony I presented November 28, 1979, on behalf of the American Petroleum Institute concerning restraints on domestic energy production being caused by provisions and interpretations of the Clean Air Act. I want to specifically confine my comments today, however, to the continuing and apparently worsening constraints on production of domestic heavy crude oil from Kern County, Calif.

My reason for doing so is that the Kern County situation represents an excellent goldfish bowl within which we can see many of the problems common to other domestic energy projects (exhibit I) [see p. 33], and within which we can clearly see the inability of the crude oil producers, the Department of Energy, as well as EPA, the California Air Resources Board and the Kern County Air Pollution Control District, to facilitate heavy crude oil production despite what appear to be the best efforts of all parties to do so.

Everybody wants to increase crude oil production, but nobody knows how to do it.

What is the problem?

Last November I told the subcommittee that crude oil producers, both independents and majors, were attempting to obtain air permits for small steam generators—25 to 50 million Btu per hour—that would allow production of a very major resource—5 to 10 billion barrels—of heavy crude oil under Kern County.

I pointed out that after permitting delays of up to 5 years, there was some hope that air permits might be issued for the initial 90,000-barrel-per-day increment of production, an that producers could soon begin to focus their attention on the next increment of production of some 45,000 barrels per day. Problems could be foreseen on this second increment of production, however, because of continuing difficulties with:

Turf problems between EPA, ARB, and the APCD;

Confusion over nonattainment and prevention of significant deterioration (PSD) permitting procedures;

Shortages of emission reduction offsets; and

Uncertainties over the construction ban resulting from an unapproved State implementation plan (SIP).

And these problems were anticipated despite use of vapor recovery facilities for hydrocarbon emissions, scrubbers for SO_2 control, low NO_x burners and thermal ammonia de-NO_x for oxides of nitrogen control, and offsets for the small remaining emissions by retrofitting SO_2 scrubbers and low-NO_x burners on existing steam generators and by paving dirt roads in nearby areas.

But in retrospect, my testimony of last November was too optimistic.

Consider what has happened:

One, the Department of Energy provided strong financial incentive to increased production by decontrolling heavy crude oil on August 17, 1979, so that the selling price more than doubled within a few months, and has now more than tripled.

Two, innumerable meetings were held involving producers, DOE, EPA, the ARB, and the APCD, seeking ways of accelerating the permitting of steam generators. Extraordinary efforts were made by all parties, but without success.

Three, an initial wave of some 148 permits giving "authorities to construct" issued in mid-September 1979 but the APCD tells us that none of these 148 steam generators has been granted the followup "permit to operate", and no further "authorities to construct" have been issued.

Four, and, finally, heavy crude oil production rates in Kern County remained flat during the second half of 1979 and actually declined during the first quarter of 1980. [Exhibits II and III.] [See pp. 98, 99.]

The problem, very simply, is that the system is so complicated that no one knows how to issue permits while, at the same time, complying with requirements for attainment and maintenance of ambient air quality standards and an approvable SIP.

What is the outlook?

The outlook is both confusing and gloomy.

The current two increments of production—the initial 90,000-barrel-per-day increment and the second 45,000-barrel-per-day increment—are in trouble.

SO_2 offsets that were believed to be available were reduced by an SO_2 control retrofit rule that was adopted by ARB/APCD in late September 1979. The remaining SO_2 offsets could be essentially eliminated by a rule change scheduled for hearing late this month.

There is no obvious source of SO_2 offsets adequate for any further significant permitting of new steam generators should this rule change be adopted.

NO_x offsets that similarly were believed to be available were reduced by an NO_x retrofit rule that was adopted by ARB/APCD early this past March. Efforts by Union to purchase NO_x offsets from those companies that have more offsets than their immediate requirements have been unproductive.

There is a widespread feeling that no responsible manager would release an offset if there would be any possible chance he might need it in the future.

Particulate offsets that additionally were believed to be available from road paving were reduced—and possibly eliminated—by the ARB's requirement that only reductions of particulates smaller than 3 microns would be acceptable as offsets, and by EPA's requirements that producers demonstrate that road dust contributes significantly to violations of the particulate standard and that paving of roads would provide a net air quality benefit. Such demonstrations obviously present quite a challenge to the crude oil producers.

So it is understandable why producers are having a difficult time seeing how future increments of production can be permitted any time within the next several years so that the full potential of Kern County can be realized.

What is the answer?

The answer now, as it was when I addressed the subcommittee last November, is that some sense of direction must be injected into this confused situation. The Nation simply cannot continue sending more dollars abroad for purchase of more foreign energy while producers and governmental agencies struggle to comply with complex and possibly unworkable regulations.

For these two current increments of Kern County production, as an example, continued delay costs the Nation in excess of $4 million per day in foreign crude imports.

We calculated since appearing here last November those expenditures that have left the country for imported oil to replace Kern County oil that has not been replaced now total over three-quarters of a billion dollars while we have been trying to understand how to get the permits to produce that Kern County oil.

Mr. Chairman, we cannot pretend to know all the steps that should be taken. We suggested several steps last November, and we want to underscore four specific steps now that clearly stand out:

1. RESOLVE TURF PROBLEMS

Turf problems continue between the ARB, the APCD, and EPA despite claims that each is doing its best to comply with requirements of the Clean Air Act. Although such problems may seem inconsequential, they are of major importance in causing delays and blocking permits.

We recommend: Those provisions of the Clean Air Act that allow for multiagency permitting should specifically require such agencies to work jointly in clearly setting forth applicant's requirements and in simplifying or eliminating multiple applications and reviews for permits on the same piece of equipment.

2. REQUIRE COMMON INTERPRETATION OF THE CLEAN AIR ACT

The ARB and Kern County APCD contend that since ozone and particulates are nonattainment in the county, that since NO_x is a precursor to ozone, and that since NO_x and SO_x may be precursors to particulates, applicants must provide offsets for both NO_x and SO_x after controls have been installed in order to comply with the act's requirements that attainment must be achieved and then maintained. EPA is understood not to support this position and not to require such offsets.

This difference in opinion is a key element in perpetuating confusion and delays in Kern County.

We recommend: Those provisions of the Clean Air Act that allow for more stringent State and local controls, and that allow for the resultant multiagency permitting, should specify that agencies use a common set of basic facts, interpretations and permitting criteria.

3. TEMPER OFFSET REQUIREMENTS

Steam generators are not being permitted, and domestic crude oil is not being produced, because companies that already have installed or committed to controls cannot find offsets. And after the remaining few uncontrolled generators are retrofitted, there will be few, if any, offsets left for future permits.

Further, companies with offsets still available appear to have no interest in selling offsets to other companies.

We recommend: Those provisions of the Clean Air Act that require offsets should be modified so that new facilities can be built, and existing facilities modified, as long as the best available emission controls are installed.

ADJUST DEADLINES IN THE CLEAN AIR ACT

Deadlines for compliance with ambient air quality standards, in conjunction with the act's requirements to show reasonable further progress toward attainment prior to the deadlines, cast serious doubt upon the ability of the State and county to prepare an approvable SIP. And failure to obtain approval, of course, will perpetuate the current ban on construction.

We recommend: Those provisions of the act that are related to attainment deadlines, attainment progress, SIP approvability and bans on construction should be modified to reflect air quality levels that actually are achievable with available controls that are economically and socially acceptable.

Mr. Chairman, these steps must be taken. We certainly are not legislative experts, but we want you to know that we are prepared to devote whatever time and efforts are necessary to assist subcommittee members and their staffs in finding ways to take these steps and to unblock domestic energy production.

Thank you for the opportunity to appear here today. My associates and I will try to respond to any questions you may have.

[Testimony resumes on p. 108.]

[Exhibits to Dr. Scott's prepared statement follows:]

EXHIBIT I

MAJOR LEGISLATIVE AND REGULATORY IMPEDIMENTS TO CONVENTIONAL AND SYNTHETIC FUEL ENERGY DEVELOPMENT

prepared by

Environmental Affairs Department

American Petroleum Institute

FOREWORD

The report Energy: The Next Twenty Years (September 1979), sponsored by the Ford Foundation, focuses on air pollution control as the major hindrance to energy growth. An important conclusion reached in the report is that current legislative and regulatory concepts and programs "make the conflicts between energy and environmental values more severe, disruptive, and costly than they need to be -- and threaten to damage both energy and environment in the long run."

At the news conference announcing the availability of the report, Dr. M. Gordon Wolman of the Johns Hopkins University Department of Geography and Environmental Engineering stated:

> While there has long been persuasive evidence that human health is impaired by breathing polluted air, science has not been able to determine which pollutants, in what combinations, at what exposures, cause which health effects. In fact, it becomes increasingly clear that such simple questions have no simple answers. ... If action must be delayed until science has all the answers, it may be too late. -- As reported in Environmental Health Letter, September 15, 1979

It may well be that the current air pollution control effort is the major hindrance to energy growth. But the Clean Air Act is only one of a whole constellation of laws that are currently impeding the development of energy sources. The American Petroleum Institute and its member companies support the goals of these laws and in large part their contents. Like Dr. Wolman, however, they believe that the nation must simultaneously pursue other crucial national goals, including adequate energy supplies, before it is "too late."

Accordingly, the purpose of this booklet is to stress the need for balance -- that is, not to fire broadsides at entire laws that in large part clearly are worthwhile, but rather to call attention to specific provisions in those laws that hinder, indeed jeopardize, the development of energy supplies, both conventional and synthetic, needed for use now and in the years ahead.

I. ENERGY: THE PRESSING NEED FOR SOLUTIONS

Government laws and regulations at all levels -- federal, state, and local -- have placed an astounding number of constraints on all of the basic industries in the national economy. This booklet in the main addresses the constraints on just one, the petroleum industry, citing specific energy projects that have been delayed or abandoned as the result of restrictive government policies. It identifies 16 key laws and some of the many energy development problems that have arisen since their enactment.

It should be noted at the outset that for years to come, while new energy sources are being developed, the conventional sources of energy will continue to be of the utmost importance to the nation. Moreover, some conventional sources are inextricably tied to the development of promising future energy sources. Coal, for example, is a prerequisite for coal gasification and coal liquefaction. In a very real sense, governmental constraints on conventional energy development are also constraints on the development of fuels for the future, including synthetics.

The facilities for producing synthetics, once they are in place, will themselves be subject to constraints that are in existence now. Facilities for producing oil from shale and for converting coal into gaseous and liquid forms, for example, will emit air pollutants and therefore will be subject to the stringent provisions of the Clean Air Act.

In light of their impact not only on current, but also on future energy supplies, existing constraints on energy development merit Congressional attention and action. Without such attention and action, delays and cancellations will continue to occur in every segment of the petroleum industry.

II. SPECIFIC EXAMPLES OF DELAYED, DENIED, AND ABANDONED ENERGY PROJECTS

The petroleum industry is concerned about the impact of all of the environmental and other laws that hamper energy development. It is especially concerned about access to federal lands. By way of general observation, it is estimated that 30 percent of the crude oil base and 43 percent of the natural gas base are located on federal lands. Yet only six percent of domestic production of both oil and gas comes from federal property. This imbalance occurs partially because vast land areas are now closed to exploration and development.

In Colorado, Wyoming, Utah, and Idaho, several million acres of land -- much of it in the promising "overthrust belt" -- are closed to energy development in order to protect the grizzly bear habitat. In Alaska, by Presidential proclamation, 56 million acres -- equivalent to the area of Virginia and North Carolina combined -- are off limits.

Following are specific examples of energy projects delayed or cancelled because of governmental constraints of many kinds:

1. Rio Blanco oil shale development, Colorado; 76,000 barrels per day. This oil shale project in a remote area of Colorado was delayed while the two-year monitoring requirement in the federal lease was carried out. Monitoring showed that pollution from natural sources such as trees and other vegetation exceeded national standards. Eventually, conditional permits were granted for the project, but additional federal, state and local air quality permits are needed before full-scale production can begin.

2. Federal Tract Cb oil shale development, western Colorado; 50,000 barrels per day. This project was delayed for one year so that it could be redesigned to meet ambient air quality standards. A conditional air permit was finally granted, but it may be revoked if the area is classified nonattainment for ozone and particulates. The operator is now trying to secure 65 federal, state, and local permits that are also required.

3. Santa Ynez Unit, California Outer Continental Shelf; 27,000 barrels of oil and 30 million cubic feet of natural gas per day. The project has been delayed for six years by federal, state, and local regulatory obstacles. There have been three major environmental impact studies, 21 major public hearings, 10 major governmental approvals, 51 consultant studies, and 12 lawsuits involving the project. To date, Exxon has invested more than $380 million and has yet to produce a single drop of oil. (See Case 1, below.)

4. Sohio marine terminal and pipeline, Long Beach, California to Midland, Texas; 500,000 barrels per day. This pipeline was intended to carry Alaskan crude oil to the Midwest and East. The project was cancelled after it became uneconomic following a five-year delay in obtaining the necessary federal, state, and local air quality permits. (See Case 2, below.)

5. Hampton Roads Energy Company oil refinery, Portsmouth, Virginia; 170,000 barrels per day. An eight-year delay has been caused in large part by needed EPA approval of the state implementation plan under the Clean Air Act and needed dredge-and-fill permit from the Army Corps of Engineers. (See Case 3, below.)

6. See Case 4, below, for a detailed description of problems that Atlantic Richfield Company has experienced in attempting to develop oil shale projects.

7. Pittston oil refinery, Eastport, Maine; 250,000 barrels per day. The project has been delayed because EPA, to protect the habitat of the Bald Eagle, declined to issue a water pollution discharge permit. The decision is being appealed.

8. Seadock deepsea port, 31 miles SSE of Freeport, Texas; ability to receive tankers to 700,000 dwt, with unloading rates up to 150,000 barrels per hour. Cancellation of the project occurred after excessive licensing restrictions forced participants to withdraw.

9. Enhanced oil production, Kern County, California; 94,000 barrels per day. Delay has been caused by failure of EPA and the California Air Resources Board to issue necessary permits for steam generators.

10. Kaiparowits power project, Kaiparowits, Utah; three million kilowatts. The project became uneconomic and was cancelled after costs increased six-fold during the 13-year delay in securing the necessary air and water permits.

11. Geothermal energy development, The Geysers, California; 630 megawatts. Local environmental restraints triggered by the Clean Air Act have denied an expansion of several hundred megawatts capacity. Lands withheld from lease sales by federal land agencies have prevented development of other geothermal projects.

12. Georges Bank Marine Sanctuary proposal. The Conservation Law Foundation has nominated the entire Georges Bank fishery as a sanctuary -- a total of 20,000 square miles encompassing the North Atlantic OCS Lease Sale area. This nomination was submitted to delay Lease Sale #42 and to reserve the Georges Bank area for the sole benefit of the New England fishing industry.

13. Oil and gas production, Bastian Bay, Louisiana; 828,000 barrels of oil and 2.9 billion cubic feet of natural gas reserves. A delay of 153 days occurred before the Federal Energy Regulatory Commission granted a permit to build a gas pipeline from an offshore platform.

14. Oil production, West Hastings Field, Texas; 4,000 barrels of oil daily. Requirements of the Texas Air Control Board and EPA have prevented the use of gas-lift compressors since late 1978.

15. Oil production, Killdeer Field, North Dakota; 1,400 barrels of oil daily. Restriction on gas flaring has caused production to cease.

16. Oil production, Cat Canyon Field, California. Two steam generators were shut down due to tight natural gas supplies. This resulted in a decrease in the production of crude oil. An application was made to the California Air Pollution Control District for Santa Barbara County requesting permission to use crude oil for fuel. The District will not grant a permit unless the company hires an outside consultant to prepare an Environmental Impact Statement. The resultant delay is estimated to be six to eight months.

17. Oil production, Sweetwater County, Wyoming. A well is presently being drilled on state land which has been included in a wilderness inventory by the Bureau of Land Management. Future production from the well may not be permitted because of its location on what is now "wilderness" land.

18. Oil production, USA #1-a, Perry County, Mississippi. Normal procedures were followed to obtain approval for drilling an exploratory well. After drilling, control problems were encountered and the well had to be abandoned. The company wanted to drill an identical well only 50 feet from the first one. The permitting agency decided that doing so would require repetition of the entire permitting process and completion of another environmental assessment. It is estimated that this requirement will delay the project five months.

19. Natural gas production, Cow Trap Lake Field, Michigan; 3 million cubic feet of natural gas per day. The operator has sought a permit to drill since late 1978. An environmental consultant and representatives of various government agencies were asked to help select a site which would minimize ecological damage. A site was subsequently agreed to by all parties, and a permit application was then made to the U.S. Corps of Engineers. The National Marine Fisheries Service, the U.S. Fish and Wildlife Service, and a private party, however, are objecting to the granting of the permit.

20. Natural gas production, Kalkaska, Michigan; 85 million cubic feet of gas per day. Delay has been caused by a jurisdictional dispute between the Michigan Department of Natural Resources and the Public Service Commission.

21. Natural gas production, Ute Dome Field, New Mexico; 39 million cubic feet of gas per day. Limits on hydrogen sulfide emissions have curtailed production.

22. Offshore oil and gas production, Block 104, East Cameron, Louisiana. Requests for permits to drill were filed in late 1978, but were not awarded until mid-May 1979.

23. Offshore oil and gas production, Block 687, Matagorda Island off Texas. An exploration plan was filed with the appropriate regulatory agencies in April 1978. The company did not obtain approval until January 1979. The delay stemmed primarily from the U.S. Fish and Wildlife Service's reluctance to approve the plan. This agency was concerned that boats and helicopters passing through the intercoastal waterway to and from the drilling rig would disturb the winter nesting grounds of whooping cranes, located in the Aransas Wildlife Refuge.

24. Offshore oil and gas production, Block 912, off Georgia. This tract was purchased at the federal lease sale held March 28, 1978. Requests for permits were sent to EPA on June 12, to the U.S. Corps of Engineers on May 26, and to the U.S. Geological Survey on December 27. The well permit was not granted until May 16, 1979, some 14 months after the lease sale.

25. Offshore oil and gas production, Block 139, South Marsh Island, Gulf of Mexico. This tract was purchased at the federal lease sale held December 19, 1978. Requests for a drilling permit were sent to EPA on February 26 and to the U.S. Geological Survey on March 9. The well permit was received on July 12, 1979, approximately seven months after the lease was purchased.

26. Offshore oil and gas production, Santa Barbara Channel, California. After the 1969 Santa Barbara oil spill, the U.S. Geological Survey (USGS) clamped a moratorium on construction of all additional platforms in the area while it studied the cause of the spill. Installation of Platform Henry was delayed approximately 11 years before the USGS finally approved the third development plan.

III. MAJOR CONSTRAINING LAWS AND REGULATIONS

Of the many laws relevant to any detailed study of governmental constraints on energy development, 16 have been selected for discussion in this booklet. Once again, the Institute supports the goals of these laws and substantial portions of their content, but wishes to call attention to those provisions posing problems for current and future energy development.

No attempt has been made to establish "priorities" among these laws because of (1) their cross-impact on one another and (2) the difficulty, if not impossibility of estimating the total impact of any given law.

1. Clean Air Act, 42 U.S.C. 74-1 et seq.
2. Clean Water Act, 33 U.S.C. 1251 et seq.
3. Resource Conservation and Recovery Act, 42 U.S.C. 6901 et seq.
4. Coastal Zone Management Act, 16 U.S.C. 1451 et seq.
5. Federal Land Policy Management Act, 43 U.S.C. 1701 et seq.
6. Endangered Species Act, 16 U.S.C. 1536 et seq.
7. Antiquities Act, 16 U.S.C. 433.
8. Deepwater Ports Act Act, 33 U.S.C. 1501.
9. Outer Continental Shelf Lands Act, 43 U.S.C. 1331 et seq.
10. Wilderness Act, 16 U.S.C. 1131 et seq.
11. Safe Drinking Water Act, 42 U.S.C. 300f et seq.
12. Marine Protection, Research and Sanctuaries Act, 33 U.S.C. 1420 et seq.
13. National Environmental Policy Act, 42 U.S.C. 4321 et seq.
14. Alaska Native Claims Settlement Act, 43 U.S.C. 1601 et seq.

15. Surface Mining Control and Reclamation Act, 30 U.S.C. 1201 et seq.

16. Coal Leasing Amendments Act, 30 U.S.C. 201, 30 U.S.C. 1262, 30 U.S.C. 1272.

1. Clean Air Act

Pertinent Sections of the Act: Major impediments to energy development are Sections 171-173, which affect economic growth in areas that have not attained the national ambient air quality standards (nonattainment), and Sections 160-166 which seek to prevent significant deterioration (PSD) of air quality in areas that have attained the standards.

Major Constraints on Energy Development: Every square inch of the nation is covered either by one or -- if an area is nonattainment for some pollutants and PSD for others -- by both sets of regulations. The result is a complex regulatory obstacle course.

For a number of years, EPA has administered an "emission offsets policy" for nonattainment areas. Under this policy, a company wishing to build may do so only if it can eliminate more existing air pollution on a pollutant-by-pollutant basis than its proposed new plant will emit. In many instances, such emission trade-offs are unavailable, especially near cities where refineries and power plants are most needed.

The problems facing a company wanting to build in a PSD area are no less formidable. EPA has divided these "clean-air" regions into three classes, each with its own legally allowable increments for emissions increases. In Class I areas, such as national parks, wildlife refuges, and strips along wild and scenic rivers, the allowable increments are so small that major construction is impossible. These Class I areas are enlarged even farther by protective buffer zones. In the remaining Class II and III PSD areas, only limited growth is possible. Complicating matters is the D.C. Circuit Court's opinion in the Alabama Power case, which expands the coverage of PSD review from the two pollutants with allowable increments established in the Clean Air Act to all 17 pollutants regulated under the Act. These PSD requirements will almost certainly restrict the development of synthetic fuels and could have a significant impact on the greater use of conventional energy resources.

The need for emission trade-offs in nonattainment areas and for "room" to grow in the PSD areas vastly complicates the permitting process both for new construction and for expansion of existing facilities. A proposed facility would have to survive up to 13 actions, 37 determinations, and 24 opportunities for denial. Furthermore, this maze must be run not with one, but up to 17 pollutants. It is therefore necessary to multiply the numbers just cited by a much larger number to get a true picture of what the energy and other basic industries are up against when they seek permits to build or expand. This complexity adds to the time, cost, and uncertainty of obtaining the necessary permits and may eventually kill many viable energy projects while they are in the planning stage.

In late 1979, EPA established the so-called "bubble policy," which appears to offer greater flexibility in choosing among the emitting sources to be controlled. Specifically, this policy would allow states to regulate on an aggregate emission source basis rather than an individual emission source basis. What effect the bubble policy will have on construction remains to be seen.

The lead content of gasoline is also regulated under the Clean Air Act. Lead has long been used by refiners to raise octane levels, permitting more gallons of gasoline to be refined from each barrel of oil. Over the past several years, however, EPA has restricted the use of lead as an octane booster, thereby increasing the amount of oil needed to make a given quantity of gasoline. Domestic refiners currently have a partial waiver from the EPA lead regulation. Should this waiver be lifted, gasoline production would noticeably decline.

2. Clean Water Act

Pertinent Sections of the Act: Many sections of this act affect energy development. In general, the law prohibits any discharge to public waters without a permit, and imposes strict pollution control requirements on all discharges, whether existing or new. An industrial plant defined as a "new source" must have its pollution control systems in compliance with specially formulated new source performance standards. The operator may also be required to prepare an environmental impact statement. Facilities are subject to technology, or effluent standards and may be subject to water quality standards, depending on location. Elaborate conditions and requirements are set forth in each permit that is granted to an industrial facility.

Major Constraints on Energy Development: The increasingly stringent goals of the Clean Water Act could require petroleum refineries, shale oil retorts, coal liquefaction and gasification plants, petrochemical facilities, and onshore and offshore exploration and production platforms to install very expensive equipment. This equipment is generally energy inefficient, will require increasing expenditures for operation and maintenance, and demonstrates poor cost-benefit ratios. In addition, in areas with restricted water supplies, expensive "closed loop" systems are usually required. There have been frequent attempts to stop or delay petroleum industry facility construction because of questions raised concerning the toxicity of refinery effluents and the possibility of spills by tankers that service refineries.

3. Resource Conservation and Recovery Act

Pertinent Sections of the Act: Sections 3001, 3002, 3003 and 3004 require regulation of hazardous waste from generation to final disposal. In implementing the Act, EPA proposed (a) a series of regulations defining hazardous wastes and (b) a management program covering generators, transporters, and facilities that treat, store, or dispose of hazardous waste. Energy-related operations are affected primarily by the broad classification of hazardous wastes identified by EPA, which fails to distinguish between low "degree of hazard" materials and such highly hazardous materials as Kepone or PCB.

Major Constraints on Energy Development: Producers of coal, uranium, oil shale, crude oil, and natural gas are apt to be increasingly affected by this program because under EPA's broad definition, almost all drilling muds, oil production brines, crude oil residue, and mining tailings may be considered "hazardous." Any "facilities" (such as reserve mud pits) disposing of these wastes will therefore be subject to regulation under the EPA program.

Although EPA has deferred some regulation of muds and brines (but not related crude oil wastes), the compliance burden that remains will be substantial, involving site selection restrictions, security, recordkeeping, reporting, monitoring, closure, and post-closure care. Figures compiled by the Institute indicate that the cost to the oil and gas drilling industry alone would be $10.8 billion each year. The oil and gas production industry would incur an estimated total compliance cost of $34.7 billion for existing wells. By way of comparison, the industry's entire 1979 U.S. budget for drilling-exploration and production was just over $21 billion.

In addition, the stringent locational requirements in the EPA proposed regulations could significantly limit installation of new refinery or synthetic fuel processing facilities which must handle waste discharges as part of their operations. For example, facilities cannot be constructed on a 500-year flood plain. Again, facilities must be five feet above high water table.

4. Coastal Zone Management Act

Pertinent Sections of the Act: Of primary concern to the petroleum industry are the CZMA's "federal consistency" procedures. Section 307(c)(3)(B) specifically applies to OCS oil and gas development programs. It provides for a review and certification of exploration, development, and production plans. If the state objects to the plans and the objection is not overridden, the lessee is required to submit a new or amended plan which is also subject to review. This process could last up to nine months or end with the termination of the project.

The Secretary of Commerce can override the state's objections upon finding that the activity is consistent with the objectives of the CZMA or is otherwise necessary in the interest of national security. Under key procedural provisions of the Act, the federal consistency power is conditional on findings made by the Secretary of Commerce in approving state management programs. Section 306(c)(8), for example, requires the Secretary to find that

> the management program provides for adequate consideration of the national interest in facilities (including energy facilities ...) which are necessary to meet requirements which are other than local in nature.

Major Constraints on Energy Development: It is clear from the legislative history and Section 302 that Congress intended the planning and implementation provisions of CZMA to advance OCS energy development and onshore energy facilities. Nevertheless, the federal consistency procedure poses practical and legal difficulties. The consistency procedure is the only Congressional attempt to resolve incompatible state and federal OCS development policies. It is anticipated that these difficulties will result in the delay or cancellation of numerous energy-related coastal facilities, such as synthetic and liquid natural gas terminals and processing plants, electric power generating facilities, and oil industry facilities.

One of the primary effects of the consistency provision is to lock the states and the Secretaries of Commerce and Interior into conflicting roles. Under the CZMA, the states are cast as environmental protectors of the coastal zone in the national interest. Also acting in the national interest, the Secretary of the Interior must balance the development of oil and gas resources on the outer continental shelf (under the Outer Continental Shelf Lands Act) and the resulting environmental impact (under the National Environmental Policy Act). The Secretary of Commerce (under the CZMA), again in the national interest, is to mediate and, in some instances, resolve disagreements between states and OCS lessees who seek permits or licenses from the Secretary of the Interior for OCS exploration, development, or production. In short, two federal agencies must make judgments concerning the same questions, and these judgments are often based on incompatible statutory missions.

In the final analysis, under Section 307(c)(3)(B), the states, and the interests they are directed to defend under the CZMA, have the power to veto OCS development. The federal government merely approves the state management programs.

5. Federal Land Policy and Management Act

Pertinent Sections of the Act: Two sections can have a significant effect on the development of conventional and synthetic energy minerals on the 470 million acres of Bureau of Land Management lands. One section (204) deals with withdrawals in general. The other section (603) deals with the management of BLM lands included in the wilderness inventory. Federal lands in the western United States and Alaska offer some of the last opportunities for major discoveries of coal, oil, natural gas, uranium, oil shale, and tar sands.

Section 204(c)(2)(2) requires "an inventory and evaluation of the current natural resource uses and values of the site and adjacent public and non-public land and how it appears they will be affected by the proposed use, including particularly aspects of use that might cause degradation of the environment, and also the economic impact of the change in use on individuals, local communities and the Nation." Section 204(c)(2)(12) requires a "report prepared by a qualified mining engineer, engineering geologist, or geologist which shall include but not be limited to information on: general geology, known mineral deposits, past and present mineral production, mining claims, mineral leases, evaluation of future mineral potential, present and potential market demands." (Emphasis added.)

Section 603(a) states that "prior to any recommendations for the designation of an area as wilderness, the Secretary shall cause mineral surveys to be conducted by the Geological Survey and Bureau of Mines to determine the mineral values, if any, that may be present in such areas. ..." Section 603(c) states: "During the period of review of such areas and until Congress has determined otherwise, the Secretary shall continue to manage such lands according to his authority under this Act and other applicable law in a manner so as not to impair the suitability of such areas for preservation as wilderness, subject, however, to the continuation of existing mining and grazing uses and mineral leasing. ..."

Major Constraints on Energy Development: Section 204 calls for an evaluation of resources before there is a withdrawal so that a proper balance between development and environment may be determined. The requirement of an assessment ignores the prime requisite for discovering conventional and synthetic fuel and non-fuel minerals -- drilling. Therefore lands are being withdrawn without knowledge of what the subsurface resources really are. Reports on surface features or past surface prospecting are not enough. Nor is isolated wildcat drilling enough. Without an adequate mineral assessment, a knowledgeable decision cannot be made as to whether minerals development -- including oil shale -- outweighs the benefit of conservation.

Similarly, Section 603 calls for mineral surveys by the U.S. Geological Survey and Bureau of Mines. Both agencies will admit that their surveys are only of a reconnaissance nature and preclude thorough subsurface knowledge. In addition, Section 603(c) has been interpreted by Interior's Solicitor that "manner and degree" and "undue degradation" are reasons for no significant leasing until after wilderness designations are made by Congress. It is apparent that Congress did intend for leasing to continue as long as the wilderness characteristics were not impaired. Mining and hydrocarbon prospecting can take place with very little disruption to the land, which can and will be restored. Prospecting disturbs only a few acres temporarily.

Proposed wilderness land should be explored by industry before it is designated as wilderness. Also needed are provisions for periodic future exploration as technical and economic conditions warrant, if conventional and synthetic fuel development is not to be hindered.

6. Endangered Species Act

Pertinent Sections of the Act: This law presents barriers to energy exploration and production because it is written in very general language, providing executive branch regulators with significant new powers but little or no operational guidance.

Section 2(a)(4) of the Act declares that it is a public purpose to prevent the extinction of a species of fish, wildlife, or plants that would occur as the consequence of economic growth or development. Section (a)(5) encourages the states, through federal financial incentives, to develop and maintain conservation programs that work to meet this goal. Section 2(b) provides that entire ecosystems of a threatened species may be conserved. Section 2(c) further declares that it is the policy of Congress that all federal departments and agencies shall seek to conserve endangered species and use their authorities in furtherance of the Act.

Major Constraints on Energy Development: The impact of the program has grown significantly in recent years. The entire ecosystem (critical habitat) of an endangered species may encompass a vast amount of acreage that would be placed "off limits" to mineral and timber development. The list of endangered flora and fauna already exceeds 1,700 species and is continually being increased. The total effect appears to be growing exponentially, particularly on public lands. Locking away such large acreage can only lower the availability of new energy supplies -- valuable deposits of coal, uranium, oil, and oil shale.

7. Antiquities Act of 1906

Pertinent Sections of the Act: Section 1 states:

> Any person who shall appropriate, excavate, injure or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States, without the permission of the Secretary of the Department of the Government having jurisdiction over the lands on which said antiquities are situated, shall, upon conviction, be fined in a sum of not more than $500 or be imprisoned for a period of not more than ninety days, or shall suffer both fine and imprisonment, in the discretion of the court.

Section 2 states:

> The President of the United States is authorized, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and may reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected. When such objects are situated upon a tract covered by a bona fide unperfected claim or held in private ownership, the tract, or so much thereof as may be necessary for the proper care and management of the object, may be relinquished to the Government, and the Secretary of the Interior is authorized to accept the relinquishment of such tracts in behalf of the Government of the United States.

Major Constraints on Energy Development: There was no apparent intent whatsoever on the part of Congress to have this Act used to prevent the development of public energy resources. The aim was to protect antiquities and national monuments, "the limits of which in all cases shall be compatible with the proper care and management of the objects to be protected." Any lands protected by the Antiquities Act are not open for exploration, production, and pipeline operations.

In December 1978, President Carter proclaimed that 56 million acres in Alaska were to be protected by this Act, as Congress had failed to pass the Alaska d-2 legislation. Like much of Alaska, the 56 million acres are unexplored and, because of the President's action, will remain so. Logically, exploration by private industry should have occurred before this drastic decision was taken, but such was not the case.

8. Deepwater Ports Act

Pertinent Sections of the Act: Under Section 4, licensees must agree to comply with any condition the Secretary of Transportation may prescribe after the issuance of the license. In the case of dual applications, Section 5 gives priority to (1) state organizations, (2) non-petroleum firms, then (3) all others. Section 7 requires the Secretary of Transportation to obtain from the Federal Trade Commission and the Attorney General their views on the antitrust implications of a deepwater port.

Major Constraints on Energy Development: Sections 4, 5, and 7 increase the uncertainty facing a participant in a deepwater project. In addition, in recent experience, implementing regulations of Section 7 resulted in liability exposure so severe that one of only two viable deepwater port projects was shelved. The regulations applied not only to the consortium planning to build, but also to all principals and affiliates.

The Act and its manner of enforcement have sharply reduced interest in deepwater projects by potential participants, including major oil companies. Furthermore, lightering of vessels, or transshipment from a vessel through a facility and into another smaller vessel, has become necessary. The extra handling means transportation delays and increased costs for crude oil and refined petroleum products.

9. Outer Continental Shelf Lands Act

Pertinent Sections of the Act: Section 5 authorizes the Secretary of the Interior to cancel leases when life (including fish and other aquatic life), property, mineral deposits, or the marine coastal or human environment is threatened with harm or damage. Section 19 authorizes governors to recommend the size, timing, location, or development and production of lease sales. The Secretary of the Interior must accept a recommendation if he finds it provides a reasonable balance between the national interest and the welfare of the state's citizens. Section 23 permits private parties that may be adversely affected by violations of the Act or implementing regulations to start civil actions in their own behalf. Clean air requirements deal with the impact of offshore emissions onshore.

Major Constraints on Energy Development: The Act will significantly delay OCS leasing, exploration, and production. The extent of such delays, however, cannot be accurately measured until some 40 new or revised regulations to implement the Act are in place. These regulations may also diminish exploration and production and discourage some companies from entering the OCS field.

The Act has also lengthened OCS leasing. According to an Office of Technology Assessment study, an average of six years elapses in established OCS areas between the time leasing is considered until production begins. Industry sources estimate that for frontier areas, a period of 10 to 15 years is more realistic.

10. Wilderness Act of 1964

Pertinent Sections of the Act: Sections 4(d)(2) and (3) contain special provisions permitting prospecting, exploration, and production beyond December 31, 1983, but no lease or patent shall issue after that date.

Major Constraints on Energy Development: Under this law, the Forest Service has designated 187 million acres for wilderness review and has proposed that Congress consider an additional 26 million acres for "wilderness" designation. Some 118 million acres have not been leased, and the 26 million acres will not be explored until Congress makes the wilderness designations.

11. Safe Drinking Water Act

Pertinent Sections of the Act: Regulations proposed by EPA under Part C, "Protection of Underground Sources of Drinking Water," would place restrictions on injection and disposal wells used in petroleum production. These are in addition to the requirements set by state regulatory agencies. Regulations have been proposed under this law even though there is no evidence that the wells have harmed sources of underground drinking water.

Major Constraints on Energy Development: Additional restrictions on injection and disposal wells would be expensive and would provide minimal benefit. Completion requirements for injection wells and recompletion requirements for active producing wells would raise costs, forcing some operations to shut down.

12. Marine Protection, Research and Sanctuaries Act

Pertinent Sections of the Act: Under Section 302(a), the Secretary of Commerce may designate coastal waters extending to the Outer Continental Shelf as sanctuaries if he determines the designation necessary to preserve or restore conservation, recreational, ecological, or esthetic values. Sanctuary designation, however, can occur only with Presidential approval, after consultation with the heads of the departments of State, Defense, Energy, Interior, and Transportation, and the Environmental Protection Agency. Under Section 302(f), the Secretary of Commerce must issue reasonable regulations necessary to control any activities permitted within a designated sanctuary. In addition, to be valid, a license, permit, or other authorization issued by another authority must be certified by the Secretary as being consistent with these regulations. Jurisdiction to restrain violations of the regulations is given to the U.S. district courts by Section 302(d).

Major Constraints on Energy Development: The petroleum industry is concerned that the Marine Sanctuary Program is being used by various groups to prohibit or severely restrict future OCS oil and gas development. To date, some 110 offshore areas involving most coastal states have been proposed as sanctuaries. These areas cover approximately 240,000 square miles, with over 200,000 square miles proposed off the Alaskan Coast alone.

The potential impacts of the Sanctuary Program are enumerated in the Commerce Department's draft designation document and proposed regulations for the Flower Garden Coral Banks, 110 nautical miles SSE of Galveston, Texas. Possible constraints on the petroleum industry in the Flower Garden sanctuary include:

- A sanctuary 1,260 times the size of the Coral Banks -- an unjustified level of protection. The draft designation document expands the original sanctuary nomination from 10-16 square miles to 260 square miles.

- Environmental impact monitoring and assessment within one nautical mile of the reefs. (This is in addition to that already rquired by BLM lease stipulations.) Cost estimates range from $300,000 to $500,000 per well on tracts as far as four nautical miles from the Coral Banks.

- Prohibition of bulk discharges of drilling fluids and cuttings. Barging of these effluents away from the site would cost approximately $300,000 per well.

- A five-year moratorium on oil and gas activities on unsold lease tracts within the sanctuary.

13. National Environmental Policy Act

Pertinent Sections of the Act: Section 102(2)(c) is the most important section of the law in that it requires an Environmental Impact Statement (EIS) for every "major federal action significantly affecting the quality of the human environment."

Major Constraints on Energy Development: An EIS must be completed before a federal project begins. Preparation of the document often takes one to two years. This and every other delay increases the project's cost and constrains energy development.

Section 102(2)(c) has been broadly interpreted by both the Council on Environmental Quality (CEQ) and the courts to include virtually any federal permit related to a private project. CEQ has taken the position that a federal permit on a right-of-way for a power line or a pipeline, for example, can be conditioned on requirements on the part of the project which is not covered by a federal permit. Moreover, CEQ has stated that no work which would affect the environment can commence until the federal permit and corresponding EIS are approved. Thus, not only is the specific portion of the project covered by a federal permit delayed until the EIS is complete, but also some or all of the rest of the project is apt to be delayed for that time.

Recent CEQ regulations are designed to streamline NEPA procedures and shorten delays. They may provide some relief in the long run. In the short term, however, they probably will generate extensive litigation as the regulations are tested in the courts. The new CEQ regulations, for example, provide for extensive discussion of alternatives. This alone creates fruitful avenues of litigation to enjoin a project on the grounds that not all alternatives were considered. The regulations also encourage simplification by requiring only a "supplemental" EIS when a previous EIS is out of date. But with the rapidly changing energy situation, it may be argued that existing EISs are not adequate and that supplementary EISs should be required in all instances.

In addition to the requirements of NEPA, many states have equivalent EIS requirements which can duplicate the federal process. While they are designed to limit this duplication, the new CEQ regulations have not been tested in the courts.

14. Alaska Native Claims Settlement Act

Pertinent Sections of the Act: Section 17(d)(2) authorizes the Secretary of the Interior to withdraw up to 80 million acres of unreserved public land for the National Park, National Forest, Wildlife Refuge, and Wild and Scenic Rivers systems.

Major Constraints on Energy Development: Alaska is believed to have more oil and gas reserves than does any other state. But most of Alaska has yet to be explored for such resources. Withdrawal of land precludes development activity, depriving the nation of its right even to know the extent of its energy resources.

Recent congressional actions propose that even more land be withdrawn. Lack of access across some of these new proposed withdrawals would add significantly to the total land area which will be unavailable for exploration and production. This is hardly a sound basis for land use planning. Moreover, to the extent that these resources are "shut in," the nation's dependence on foreign sources of oil increases.

15. Surface Mining Reclamation and Control Act

Pertinent Sections of the Act: This law addresses not only surface mining, but also the surface effects of underground mining and *in situ* gasification. It therefore applies to virtually every coal mining operation in the nation, providing (1) that certain lands be designated "unsuitable" for mining and (2) that disturbed lands be reclaimed.

Major Constraints on Energy Development: The Interior Department's Office of Surface Mining (OSM) has imposed strict design specifications on the mining industry. These regulations, because they do not allow sufficient flexibility to consider different conditions at various sites, have increased costs. Moreover, OSM's classification of some lands as unsuitable for coal mining has precluded production of some of the nation's economically recoverable reserves.

Mining regulations superimpose air and water quality requirements upon those already established by EPA and make no distinction between underground and surface activity, despite the law's mandate to recognize "distinct differences" between the two. Senator Jennings Randolph (D-W.Va.) noted in recent hearings that OSM's regulations could "stymie coal production, particularly in Appalachia, to the point of practical shutdown."

16. Coal Leasing Amendments Act

Pertinent Sections of the Act: A federal coal management program, prescribed by the Coal Leasing Amendments Act of 1976, involves four steps: (1) Bureau of Land Management land-use planning to identify lands acceptable for leasing, (2) coal activity planning in order that leasing can be scheduled efficiently, (3) setting lease target levels based on Department of Energy goals, and (4) setting up procedures for managing coal sales.

Major Constraints on Energy Development: The coal management program has proved to be nearly unworkable for the following reasons:

- It requires non-existent detailed knowledge of the physical characteristics of federal coal lands.

- It applies unnecessarily stringent criteria to the development of existing federal coal leases and preference right lease applications, threatening to disrupt ongoing planning for orderly coal development in the future.

- It imposes "diligent development" requirements based on federal production goals, thus creating an artificial incentive to produce coal. Even though such production may not be justified by actual market conditions, failure to produce can lead to lease termination.

- "Fair market value" and "maximum economic recovery" are defined in such a way as to result in royalty payments greater than the 12-1/2 percent minimum rate established by the Act. This imposes an additional economic burden, thereby detracting from incentives to lease and produce federal coal.

Individually, the 16 laws discussed above place severe constraints on energy development. But the impact of one law can never really be isolated from the impacts of other laws. The requirements of one act all too often are intertwined with those of others. The implementing regulations, particularly, give rise to conflicts and inconsistencies.

As an example, it is the announced intention of the President to encourage not only energy conservation, but also domestic energy production and use. Yet all of the laws discussed above, as well as many others, hinder domestic energy production and use. In short, permitting difficulties have grown exponentially over the years. The whole is greater than the sum of its parts. Congress, if it is to reverse this trend, must review a great deal of energy-restraint legislation, not focus on a few of the more obviously troublesome laws.

IV. FOUR CASE HISTORIES

1. Offshore Production, Santa Ynez Unit off the California Coast, Exxon Company, U.S.A.

2. Pactex Pipeline, from Long Beach, California, to Midland, Texas, Standard Oil Company (Ohio)

3. New Refinery, Portsmouth, Virginia, Hampton Roads Energy Company

4. Oil Shale Development, Western Colorado, Atlantic Richfield Company

NOTE: The following case histories, prepared by the companies involved, have been only lightly edited.

Case 1. Offshore Production, Santa Ynez Unit off the California Coast, Exxon Company, U.S.A.

Historical Background

The Santa Ynez Unit is composed of federal leases on the Outer Continental Shelf near Santa Barbara County, California. Exxon acquired its interest in these and other leases in the Santa Barbara Channel for $128 million in early 1968.

Water depths in the Santa Barbara Channel range up to 2,000 feet. In anticipation of a sale involving such deepwater tracts, Exxon had already started spending large amounts of money to perfect deepwater technology. This involved floating drilling technology, extension of the use of platforms to very deep water, and an entirely new, totally submerged production system.

Since acquiring the leases, 50 exploratory wells have been drilled in the Santa Barbara Channel, several of which set world records for deepwater drilling. Three oil and gas discoveries were made in the western end of the Channel -- the Hondo Field in 1969 and the Pescado and Sacate Fields in 1970. In late 1970, the federal government approved the formation of the Santa Ynez Unit, consisting of 17 leases encompassing these three fields.

The three fields are located in water depths ranging from 600 to 1,200 feet -- deeper by far than any previous development anywhere in the world. The crude oil to be found there is high in sulfur content and for the most part is located in a very dense chert formation. These complexities make estimation of reserves and prediction of future production more uncertain than would otherwise be the case.

Data collected during the drilling of 29 exploratory wells within the Santa Ynez Unit area indicated that the most significant reserves were in the Hondo Field. Even though there was considerable economic risk associated with this deepwater development, particularly with the relatively poor crude and reservoir properties, Exxon decided to undertake very large expenditures in the Hondo Field.

In early 1971, a Plan of Operations for initial development of Hondo was submitted to the U.S. Geological Survey. Exxon expected that the Plan would be approved in about six months and that production could begin in early 1974. This timing was in keeping with Exxon's experience in the Gulf of Mexico and with that of other operators in the Santa Barbara Channel. But extensive regulatory delays were encountered. As a result, production start-up, already delayed seven years beyond the time originally planned, is now planned for 1981.

Federal Plan Approval

Following submittal of the Plan of Operations in early 1971, the U.S. Geological Survey (USGS) determined that an even more detailed plan was required. The final plan, when supplemented by a seven-volume report later in 1971, was the most extensive ever filed by an operator of a federal lease. Using this material, the USGS prepared an 1,800-page federal Environmental Impact Statement (EIS) -- the first EIS ever prepared for an OCS development. Public hearings were held for three days in Santa Barbara. The final EIS was issued in May 1974, with one of the highest EPA ratings.

In August 1974, after more than three years of study, the Secretary of Interior approved the Plan of Operations. Two alternatives for treating and transporting the produced oil were recommended. The preferred plan provided for treating the oil onshore and then moving it to market by tanker using an existing, but modernized marine terminal. The Secretary recognized that difficulties could be encountered in securing the necessary local consents. In order to assure timely development of this domestic energy reserve, he also approved a floating offshore storage and treating facility (OS&T) with tanker loading facilities to be moored in federal waters. No serious objections to the Plan of Operations were voiced by the State of California during the entire plan review process. In fact, the State Lands Commission adopted the federal EIS as its own report during proceedings which led to the granting of a pipeline and marine terminal lease.

Initial Development Plan (Onshore)

Even before federal approval of the Plan, Exxon began efforts to secure necessary local permits. Following an extensive Environmental Impact Report prepared by Santa Barbara County, the onshore treating facility and marine terminal were approved by the County Planning Commission and the Board of Supervisors. In May 1975, the two projects were approved by voters in a referendum.

Following the referendum, Exxon applied to the South Central Regional Coastal Commission for a permit for the portion of the pipeline and marine terminal which would be in the Coastal Zone. During the course of those proceedings, opponents of the project recommended deletion of the marine terminal in favor of pipeline transportation. The question of pipeline transportation had been considered by the federal EIS and rejected because, compared to using tankers, a pipeline had no environmental advantage and a substantial economic disadvantage.

The Regional Commission considered the pipeline alternative, rejected it, and in September 1975, issued a permit for the facilities -- including the marine terminal -- to be located within the Coastal Zone. During the local and regional proceedings, the County of Santa Barbara and Regional Coastal Zone Commission imposed a total of 76 conditions on their approvals, all of which were accepted by Exxon.

The Pipeline Issue

Opponents of the project appealed the Regional Commission's permit decision to the State Coastal Zone Commission. The State Commission's staff had adopted a position opposing the location of marine terminals within the Coastal Zone. They wanted instead to pipeline Santa Ynez crude as part of a strategy that eventually would eliminate marine terminals. Exxon did not consider a pipeline to be a feasible alternative for Santa Ynez.

There is no pipeline in the vicinity of Santa Ynez. It would have been necessary to construct a new line. Although several alternative routes were considered, discussion with the State Commission staff focused on a 140-mile pipeline to the Los Angeles harbor refining area. Refineries in the Los Angeles area have more than one million barrels per day of distillation capacity, but desulfurization capacity is limited. According to Exxon's most optimistic estimate, local refineries would take only 25,000 to 40,000 barrels per day of the high-sulfur Santa Ynez crude. At the projected peak production rate of 80,000 barrels per day, therefore, 50 to 60 percent of the crude would have to be loaded onto tankers in the Los Angeles area for trans-shipment to other refining centers.

Furthermore, Exxon was and still is far from certain that the predicted production of 80,000 barrels per day would ever be realized. Such a level of production would require additional platforms or similar structures at Hondo and at the other two fields. These are developments which must be justified. With only the initial development at Hondo, production is expected to peak at about 27,000 barrels per day. Exxon did not believe a pipeline costing $60-70 million could be justified for that level of production.

In spite of the problems and uncertainties associated with a pipeline, Exxon spent several months negotiating with the State Commission and its staff trying to find a suitable compromise. The company offered to spend $500,000 for preliminary engineering studies and preparation of an environmental impact report for a pipeline. If the studies indicated that a pipeline would be economically and environmentally sound, Exxon was willing to begin the process of obtaining necessary permits from the more than 14 government entities having jurisdiction along the 140-mile route to Los Angeles. Additionally, Exxon offered to spend up to $40 million for its share of a common-carrier pipeline that would be available to all producers in the area provided: (1) the company developed production in excess of 40,000 barrels per day, (2) necessary permits could be obtained, and (3) other producers committed reserves and financial participation to the pipeline.

On March 3, 1976, after almost two years of effort to obtain required state and local permits, the State Coastal Zone Commission denied the Regional Commission's permit, rejected Exxon's offers, and issued a permit with conditions that the company could not accept. In essence, the State Coastal Zone Commission's conditions required that Exxon build a pipeline to transport the oil to an unknown destination without a limitation on cost. The Commission's plan had severe economic disadvantages and no environmental advantages. Exxon brought suit against the Commission to prevent it from interfering with the Plan of Operations approved by federal, state, and local agencies. The Commission argued that it was not interfering with the development of the Santa Ynez Unit, since Exxon was free to use the approved offshore treating alternative. Exxon had hoped for quick resolution in the courts. This did not occur, and the suits were subsequently dropped.

Initial Development Plan (Offshore)

Meanwhile, the Department of Interior re-evaluated the pipeline and tanker alternative, concluded that the State Commission's conditions were unreasonable, and met with the Commission's chairman and staff in an attempt to work out a solution. These efforts were also unsuccessful. In July 1976, the Department of Interior reaffirmed its prior approval of the offshore storage and treating alternative. Exxon has therefore proceeded with the OS&T and has now spent more than $80 million on it. Adding to that the cost of the platform, leases, and exploratory work, Exxon now has more than $500 million invested in the Santa Barbara Channel and has not yet produced the first barrel of oil.

Exxon believed that the Department of Interior's reaffirmation of the OS&T in July 1976 would end the uncertainty surrounding approval of the offshore plan. In November 1976, however, the State Commission filed suit seeking an injunction to stop use of the OS&T. The court denied the State's request. Then, in January 1977, the State of California and Santa Barbara County requested the new Secretary of the Interior to revoke the Department's approval of the OS&T. A great deal of correspondence followed, including proposed new onshore permit conditions from the State of California. Near the end of August 1977, however, some eight months later, Interior advised the State that it would not revoke Exxon's offshore approval. Thus, the OS&T was affirmed for the third time.

The OS&T is basically an oil-treating facility similar to many which Exxon operates. One exception is that the facilities are being installed on the deck of a converted tanker. The OS&T will be moored near the platform in federal waters. Oil produced at the platform will be pipelined to the OS&T, where it will be treated and stored in the vessel's cargo tanks. The treated crude will periodically be loaded onto a shuttle tanker for delivery to refineries. A portion of the gas produced at the platform will be treated on the OS&T to remove hydrogen sulfide and will then be burned as fuel in gas turbines used to generate electricity for the operation.

The State Coastal Zone Commission does not want natural gas to be brought ashore unless oil is also treated onshore. Therefore, until necessary permits and approvals are obtained to construct onshore gas-treating and sales facilities, the bulk of the natural gas produced in association with the oil will of necessity be returned to the producing formation.

Water Discharges

In September 1976, EPA advised Exxon that a National Pollutant Discharge Elimination System (NPDES) permit would be required for discharges from the OS&T. Because the OS&T is a vessel, the company believed that such a permit would not be required. Discharges from the OS&T are mainly seawater (cooling system, segregated ships ballast, and fire water system) and treated sanitary and domestic waste. All of the discharges meet or exceed federal and state specifications. Exxon filed for an NPDES permit under protest. Neither the EPA nor anyone else has found fault with the water discharges. The permit was finally issued in February 1978. Issuance was delayed months while EPA attempted to place air emission conditions on the water discharge permit.

Air Emissions

The federal EIS considered potential air pollution effects, if any, due to the operations of the OS&T. It concluded that there would be no significant effects. The EPA participated in the preparation of the EIS, as did the State of California and the local Santa Barbara County officials. At no time during those proceedings did EPA or any other agency question the EIS's conclusion. Exxon has retained consultants with expertise in the area, and the results of their studies support the position that project emissions will not significantly affect local air quality.

Exxon has included many features which will minimize those emissions. The OS&T, for example, is designed so that hydrocarbon emissions from the production and storage of oil will be virtually eliminated. All crude oil and water storage tanks are gas blanketed. As these tanks fill with liquid the vapors expelled are collected, compressed, and routed into the fuel gas system on the OS&T, where they are consumed in the gas turbines.

In September 1977, EPA advised Exxon that an air permit would be required for the Santa Ynez facility. This was the first time that EPA had claimed jurisdiction over air emissions from resource development on the Outer Continental Shelf. Since the Clean Air Act Amendments of 1970 were enacted, more than 700 platforms and structures for oil and gas drilling, treating, and processing have been constructed on the OCS. Not one was required to have a permit.

Exxon took legal action to challenge the EPA assertion. This was followed by further EPA claims of jurisdiction, plus a California Air Resources Board (CARB) suit to block Exxon from proceeding with the offshore treating project. In May 1978, Exxon asked the Ninth Circuit Court of Appeals to review the EPA decision, along with CARB's suit, and the almost completed treating vessel was put into mothballs to await the outcome. The consolidated cases were heard in April 1979. The Court ruling on August 21, 1979, that EPA was in error and that jurisdiction for air emissions on the OCS resides with the Department of the Interior (DOI) still did not allow a green light for the project.

During the long period of delay, amendments to the OCS Lands Act gave DOI the authority to regulate OCS air emissions. Even though all suits were now settled, a question remained on whether DOI would delay approval of Exxon's amended development plan until air emission rules were issued. Exxon's appeals to the Secretary, however, along with the provisions of certain additional air emission controls, eventually brought approval to proceed on November 30, 1979.

Summation

More than 11 years have passed since Exxon acquired its federal leases in the Santa Barbara Channel. In large part because of these numerous delays, Exxon now has over $380 million invested in the Santa Ynez Unit and more than $500 million in the Santa Barbara Channel. Yet, clear benefits are still unrealized. Production from the Santa Ynez Unit would provide vitally needed domestic oil. California consumers could receive as much as 77 million cubic feet per day of clean-burning natural gas. This amount is enough to supply the needs of all of the homes in Santa Barbara, Ventura, and San Luis Obispo Counties.

It has been more than 10 years since the initial discovery and more than eight years since Exxon submitted to the government its plans for initial development. Three environmental impact studies have been prepared. There have been 21 major public hearings and many working sessions with various staff groups. The development has received 10 major governmental approvals, and the onshore plan was approved by the voters in a county-wide referendum. In addition, the offshore treating plan has been reviewed and affirmed several times. There have been 12 lawsuits filed in connection with exploration and development of the Santa Ynez Unit leases.

Regulatory hurdles were finally cleared on November 30, 1979, so that construction of the offshore treating vessel could resume. Exxon and contractor design and supervisory forces are being reassembled to complete this work. These preparations should allow oil production to be initiated in 1981. The natural gas, however, will have to be returned to the producing formation. Further regulatory hurdles to bringing the gas ashore yet remain.

Case 2. Pactex Pipeline, from Long Beach, California, to Midland, Texas, Standard Oil Company (Ohio)

October 1973

Events and trends following the Arab Oil embargo of 1973 alter the outlook for future crude oil distribution patterns. Key factors include lower demand resulting from higher petroleum prices and conservation measures and intensified efforts for increased domestic crude oil production.

February 1974

Sohio completes an initial examination of the probable impact of these factors on West Coast crude markets. A key conclusion is that with a flow of Alaskan North Slope crude oil, a domestic crude oil surplus will develop on the West Coast beginning about 1978. Sohio informs federal government of the problem.

> NOTE: Forecasts made prior to the Arab embargo indicated that the West Coast could absorb the Alaskan crude. Post Arab embargo trends altered that outlook.

June 1974

Sohio publicly announces that pipeline feasibility studies have been initiated and commences a program to advise concerned governmental bodies of the need for a pipeline.

January 1975

Sohio selects the southern pipeline route and Long Beach, California, as the site for the marine terminal.

May 1975

Negotiations with El Paso Natural Gas Company are concluded. El Paso will seek abandonment of one of several westbound existing gas lines for conversion to eastbound crude oil transportation service. Use of the El Paso line will provide approximately 675 of the 1,000 mile pipeline from Southern California to Texas.

June 1975

El Paso Natural Gas Company files an application with the Federal Power Commission to allow abandonment of the idled El Paso natural gas lines from natural gas service so that they can be made available for crude oil service (FPC Docket No. BP75-362).

July 1975

Sohio files applications with both the Los Angeles and Long Beach port authorities and enters agreements to initiate detailed engineering and to compile the environmental data necessary to complete the Environmental Impact Report (EIR) required by California.

El Paso files applications with the Bureau of Land Management to convert the gas line from natural gas to crude oil service and begins a program to convert other easements in Arizona and New Mexico (BLM applications A-#9140 and NM-#26713).

Sohio initiates discussion with involved governmental agencies regarding which federal agency will play the "lead agency" role in preparing the Environmental Impact Statement (EIS).

September 1975

The Sohio Transportation Company is formed as a wholly-owned subsidiary of The Standard Oil Company (Ohio) and on September 12 files an application with the Bureau of Land Management for easements across federal lands (CA-#3242).

Sohio initiates an intensified program to brief affected governmental agencies at both the federal and state levels concerning the scope and rationale of the project.

November 1975

The first submission to the Bureau of Land Management of data which will be required for the development of a federal EIS is made.

December 1975

EPA informs Sohio by letter than a New Source Review (NSR) permit will be required.

January 1976

The Port of Long Beach, acting as lead agency in California, begins to develop the California EIR required under the California Environmental Quality Act.

February 1976

The Port of Long Beach's role as lead agency is challenged by a number of California agencies. As a result, the Office of Planning and Research is appointed by Governor Brown to determine the appropriate lead agency.

March 1976

A joint state-federal task force is formed to provide consultation between EIR and EIS teams.

April 1976

The Office of Planning and Research designates the Port of Long Beach and the California Public Utilities Commission as joint lead agencies, after consideration of such other California agencies as the State Lands Commission, the California Coastal Commission, and the California Air Resources Board (CARB).

The completed Environmental Impact Assessment (EIA) is submitted to the Bureau of Land Management. Sohio suggests use of a "tradeoffs" approach for handling air quality concerns.

Negotiations are concluded with the Southern California Gas Company for the 125-mile gas line segment in California. Together, the two gas line segments provide approximately 800 miles of the 1,000-mile pipeline project.

July 1976

The U.S. Navy announces completion of an assessment of the various alternatives for transporting Elk Hills crude oil. On environmental and other criteria, the construction of a pipeline south from Elk Hills to tie in with the Long Beach-to-Texas pipeline near Redlands, California, is rated high relative to other alternatives.

August 1976

Sohio releases an air quality study which defines project-related air emissions in detail and which explains the relationship between the proposed project and crude oil deliveries to existing southern California port facilities. The relationship between the project and alternative methods of transporting Elk Hills crude is also explained.

September 1976

A number of California state agencies actively advocate use of an offshore port facility in a central California port as the appropriate site for the port to serve the PACTEX pipeline project. The California Office of Planning and Research is appointed to conduct a study of California port sites.

Hearings before the Senate Interior and Commerce Committees and a Subcommittee of the House Interior Committee result in publicity which highlights the importance of resolving issues relating to the distribution of Alaskan crude oil.

October 1976

The California draft EIR is completed and released. CARB operates under Resolution 76-39, NSR rule for the Air Pollution Control District, requiring emission tradeoffs and CARB concurrence in major permits. Sohio files air quality permit applications for the project, and a series of technical meetings with CARB and the Air Pollution Control District is initiated in an attempt to achieve agreement on the level of emissions from individual project components and tradeoff requirements.

November 1976

The federal draft EIS is completed and released. Sohio files air quality permit applications for the project with EPA.

The California Office of Planning and Research completes a study on the appropriateness of California port sites. The scope of the California EIR is expanded to include a study of the Guadalupe Dunes area.

December 1976

Sohio, CARB, and the Air Pollution Control District reach agreement on emission factors to be applied to each individual emission source associated with the project under various assumptions regarding emissions controls and their effectiveness. There remains uncertainty in a number of areas, including control assumptions and enforceability, as well as tradeoff guidelines.

Public hearings on both the draft EIR and draft EIS are completed.

EPA requests additional information from Sohio.

EPA promulgates an "Interpretive Ruling" establishing criteria for approval of new sources in air quality nonattainment areas, including the requirement that emission offsets be greater than proposed new source emissions.

February 1977

Sohio concludes a joint research program with Chicago Bridge and Iron Corporation, a large crude oil storage tank manufacturer. The studies establish the state of the art with respect to calculating emissions from floating roof tanks and demonstrate the most effective combination of tank seals with respect to limiting storage tank hydrocarbon emissions.

Sohio files a supplement to the California air application. The supplement includes proposed restrictions and rules pertaining to use of the marine terminal, proposed guidelines for selecting acceptable tradeoffs, and a tradeoff package containing tradeoffs to offset the "highest operational" mode emissions for each of four types of air pollutants.

March 1977

The CARB rejects portions of the February 1977 tradeoffs package.

April 1977

Sohio submits a 50-page response to questions contained in CARB's March letter.

Final EIR is published and distributed.

May 1977

The 3,000-page California EIR is certified by the Port of Long Beach. The Port of Long Beach files an application with the California Coastal Commission (CCC) for port and pipeline facilities to be located in the Coastal Zone.

Phase I, the pre-environmental phase of the Federal Power Commission proceedings, is completed. FPA Administrative Law Judge Convisser rules in favor of abandonment after considering a number of alternative future gas supply scenarios.

State CCC rules that it will take initial jurisdiction over PACTEX project.

June 1977

The California Public Utilities Commission certifies the California EIR.

The 3,000-page federal EIS is completed and released to the Council of Environmental Quality.

The South Coast Air Quality Management District (SCAQMD) completes preliminary review of the Sohio application and informs Sohio of the conditions under which a permit can be granted. SCAQMD sets a tradeoff requirement of 120 percent of the highest operational mode.

July 1977

The State of California files with the Federal Power Commission to reopen the Federal Power Commission Phase I proceedings due to Mexican gas considerations.

The State of California files with the Federal Power Commission Phase II (environmental proceedings), arguing that abandonment of the El Paso gas line is not in the public interest because of the availability of other pipeline alternatives which are potentially more economic and more environmentally sound and because the FPC has recommended deferring a decision on the western leg of the proposed Alaskan North Slope gas transmission system.

SCAQMD initiates a series of hearings on the PACTEX project.

CARB holds the Saturday hearing on the project immediately prior to the start of SCAQMD hearings.

August 1977

The Federal Power Commission rejects California's motion to reopen the Phase I proceedings. Administrative Law Judge Convisser completes Phase II of the FPC proceedings and rules in favor of abandonment of the El Paso natural gas line.

Congressional hearings are held by both the House Interior Subcommittee on Special Investigations and the House Interstate and Foreign Commerce Subcommittee on Energy and Power. The hearings highlight the positions of the various parties and reveal the differing tradeoff requirements and standards of the three air agencies involved.

The California Coastal Commission holds a public hearing.

The Navy completes the draft EIS and public hearings on distribution of Elk Hills crude and expresses a clear preference for the Elk Hills-Sohio tie-in on environmental and other grounds.

September 1977

SCAQMD hearings continue on air quality construction permits.

Senate Energy Committee reports out expediting legislation (H.R. 4018, S. Rpt. 95-442).

Sohio reduces the size of the project from 700,000 to 500,000 bbls. per day and from three tanker berths to two.

October 1977

The California Coastal Commission approves the basic coastal permit, but requests that an amendment be filed for no more than three tanks on Pier J.

SCAQMD hearings continue on air quality construction permits.

SCAQMD staff prepares a major supplement to the Staff Report, Supplement #3.

November 1977

The SoCal gas line abandonment application is submitted to California Public Utilities Commission on November 18.

California Department of Fish and Game stream crossing permits are granted.

SCAQMD hearings continue.

Public hearings result in draft supplement to final California EIR.

December 1977

President Carter declares construction to be in national interest (December 21, 1977).

Hearings on the abandonment of the SoCal gas line are held by the California Public Utilities Commission (CPUC)

SCAQMD hearings continue.

BLM staff submits Program Decision Options Document to Department of Interior Secretary Andrus, recommending approval of ROW grants, subject to certain stipulations.

Port of Long Beach certifies final supplement to EIR.

January 1978

California Los Angeles Region Water Quality Control Board permit is granted for dredging and related port activities.

Santa Ana Regional Water Quality Control Board permit is granted for stream crossings.

SCAQMD makes preliminary findings and orders after 14 full days of hearings over the period of July 1977 through January of 1978.

CPUC adopts final EIR.

California Coastal Commission holds a hearing on Permit Amendment for three tanks on Pier J.

February 1978

Colorado Desert Region Water Quality Control Permit is granted for Colorado River crossing.

Local project opponents file suit against project EIR.

California Coastal Commission decides more information is needed before it can act.

March 1978

Arizona State Lands Commission grants Colorado River crossing permits.

Local court sends EIR challenge to California Supreme Court.

April 1978

The California Coastal Commission determines that before acting, it needs additional air quality information.

May 1978

Applications are filed with the California Coastal Commission for June hearing. Sohio and Edison continue to work on an agreement:

- EIR for scrubber issues are raised;
- IRS tax questions relative to scrubber tax treatment are reviewed;
- FERC's final decision on abandonment is reached (4-A, May 26, 1978);
- SCAQMD files final findings, decision, and order relative to the first phase of air quality hearings which were completed in January;
- Agreement in principle is obtained with Port of Long Beach covering required land and water areas for project; and
- The Los Angeles County Conditional Use Permit for tank farm is filed.

June 1978

Permit conditions for air quality construction permit are resolved with CARB.

Sohio-Edison agreements are in final drafting stage.

Port Agreement for lease of harbor area is reached and signed on June 23. Second reading for June 30 is stopped by temporary restraining order obtained by project opponents.

Opponents of the project file a lawsuit on June 29, challenging the provision in the Agreement with the Port of Long Beach which says construction must begin within 90 days of the effective date of the agreement.

California Coastal Commission fails to act on permit amendment. More information is requested.

CARB circulates permit conditions to DOE, EPA, SCAQMD.

July 1978

PACTEX-Edison agreement on scrubber is reached.

California Public Utilities Commission agrees to be lead agency for scrubber EIR, providing Edison is an applicant.

DOI-BLM approves new construction permits on most federal lands on July 26.

Port of Long Beach-PACTEX Agreement is approved by Board of Harbor Commissioners on July 6.

Local project opponents begin drive to place project on November ballot.

Sohio submits to SCAQMD a tradeoff package which includes an SO_2 scrubber.

Sohio signs an amended lease agreement with El Paso to conform El Paso's financial position to FERC ruling 4-A issued on May 26, 1978.

August 1978

In a letter to Sohio, SCAQMD raises several issues regarding a scrubber which will require substantial amounts of additional research and evaluation.

As a result, Phase II air quality hearings are postponed to early 1979.

EPA Region X (Texas) Prevention of Significant Deterioration (PSD) permit application is filed.

PACTEX-Edison agreement is signed on August 18.

Local opponents are successful in obtaining enough signatures to place Port-PACTEX agreement on November ballot.

EPA issues draft of proposed project air permit.

El Paso files request for reclarification with FERC on August 24.

Edison and Sohio notify the California Public Utilities Commission that they will be co-applicants before the Commission for an EIR on the scrubber.

Pactex Pipeline Company files with FERC a petition for declaratory order concerning the regulatory accounting treatment of pollution control tradeoff investments.

PACTEX and SoCal Edison file with IRS a ruling request covering the tax treatment of those facilities to be installed on Edison's power plant as part of any tradeoff package.

September 1978

California Coastal Commission hears request for amendment to permit three tanks on Pier J. (Straw vote showed five "yes" and three "no" votes. Six yes votes are required.) No action is taken by Commission.

Commission responds to SCAQMD's request for more information by indicating a need for a postponement of hearings until additional required information can be gathered.

Edison applies to SCAQMD for construction permits for scrubber and de-NO_x unit.

October 1978

California Public Utilities Commission approves abandonment of SoCal gas line on October 17, effective November 16, 1978.

Los Angeles County grants conditional use permit for tank farm.

EPA grants a conditional air permit on October 13.

Senate and House agree to Conference Report expediting PACTEX project. (Senate, October 9, 1978; House, October 15, 1978; Title V, Public Utilities Regulatory Policies Act of 1978 portion of NEP.)

California Coastal Commission denies the amendment for three tanks on Pier J by a vote of six to five for approval; seven approving votes are required for passage.

November 1978

Long Beach voters approve PACTEX-Port of Long Beach Agreement by a 61 to 39 percent margin.

Corps of Engineers approves Colorado River crossing permit.

President signs NEP November 9, 1978. All federal agencies are required to issue all federal permits necessary for construction and operation of PACTEX by December 9, 1978.

EPA formally approves the New Source Review Rule of the State of California, which effectively delegates the federal new source review function to the state.

Opponents of the project file a petition for rehearing with the CPUC covering the SoCal abandonment ruling. This petition was effectively filed on November 15, one day before the end of the 30-day challenge period. There is a 60-day period for CPUC to respond to this rehearing petition.

December 1978

CARB publishes a Model New Source Review Rule which may impact on the acceptability of the Sohio tradeoff package.

The lease agreement between Sohio and the City of Long Beach Harbor Department is officially signed on December 22.

January 1979

The Port of Long Beach sends a copy of the lease agreement with Sohio to the federal Maritime Commission for approval, pursuant to Section 15 of the Shipping Act of 1916.

The 60-day period within which the CPUC is to respond to project opponents' petition for rehearing on the SoCal gas abandonment expires January 15.

No action has been taken by CPUCc and as of January 17, 1979, this five-member Commission has only two seated members.

It is during January 1979 that Sohio officials begin meeting with executive department officials of the State of California and representatives of the California legislative leadership. These meetings are to explore the legal and political feasibility of passing California legislation which would expedite the decision-making process on the remaining permits and the pending and expected lawsuits which could be expected to delay the project commencement until at least 1980.

February 1979

Work to process the remaining permits and to prepare for scheduled administrative hearings continues. Sohio presents a draft of the PACTEX pipeline expediting legislation to key California legislators and discusses plans for introduction of the legislation.

March 1979

Work to complete the permitting process in California continues. Hearings begin before the SCAQMD on the Phase II air quality issues. The California Coastal Commission sets a hearing for March 19 on the Sohio application for an amendment to the Coastal Permit.

On March 13, 1979, Sohio announces its intention to abandon the PACTEX project.

Case 3. New Refinery, Portsmouth, Virginia, Hampton Roads Energy Company (HREC)

Aide Memoire

Introduction

The start of this project really goes back to the mid-sixties when the writer, as Executive Director of the Independent Fuel Oil Marketers of America, started a search to develop on the East Coast new refinery capacity that not only would supply increasing demand for refined fuels, but also would be independently owned and operated so as to be a source of refined fuels for the independent marketers in the region. After many months of market research and on-the-spot survey of sites, four locations were selected as excellent potential sites for a refinery: Machiasport, Maine; Newport, Rhode Island; Hampton Roads, Virginia; and Savannah, Georgia. Contacts were made with state and local authorities in these areas.

In 1969, a site was found consisting of roughly 2,000 acres in Nansemond County (now Suffolk County), Virginia. This was farm land, and it took three years to get the land zoned "commercial." During this time, engineering, marketing, and other studies were made for a refinery complex that would have been serviced by a submarine pipeline from the site, which was on the south shore of Hampton Roads Bay, to a dock on deep water in Newport News. The pipeline would have been about seven miles long.

When the project was started in 1969, there was no environmental opposition to such a pipeline, but by the time the land was zoned in 1972, there was opposition. In fact, this opposition grew to such a point that we decided that we had to try to find an alternative "outlet." Accordingly, we started negotiations for a right-of-way to build a pipeline from the Nansemond site to the Norfolk Channel 10 miles away. This required more environmental and engineering studies. All obstacles had about been overcome when the present site, which has nearly a mile of waterfront on the Norfolk-Portsmouth Channel, was offered to us. Cox Enterprises, Inc. purchased the property (slightly over 600 acres), and we abandoned the Nansemond site which, while an excellent one, was far inferior because of its much greater distance from a deep water channel. Those officials who have viewed and inspected this site have all concurred in the conclusion that the present site is the best of any active port on the East Coast. It features a broad, mile-wide channel with no hazards to shipping, has the deepest channel of any active port on the East Coast (46' MLW), and is located in the heart of a high energy-consuming area.

There is a shortage of low-sulfur residual fuel oil and unleaded gasoline in the region, and the plant would produce these "clean" fuels. There is high unemployment and low tax revenues (due to a narrow industrial base) in the locality, both of which would be relieved by the proposed refinery complex. The Navy, Air Force, and Army all have in the area sizeable base operations that require a very large supply of military specification fuels -- all of which would be produced by this refinery. Further, in case of an emergency, the plant could be converted to nearly 100 percent production of these military specification fuels. In addition, according to estimates by the Department of Energy, this plant would add to the East Coast over 10 million barrels of storage which could be considered additional strategic reserve storage in a national emergency.

We have spared neither effort nor expense in moving forward to get the necessary permits to enable us to proceed with construction of this facility. Speculative (front-end), out-of-pocket expenditures for land, environmental impact studies, legal fees and administrative costs exceed $7 million, and the end still is not in sight. Further, each day's delay sees the estimated cost of the plant itself increase. The environmental issue becomes more emotional and more political as each day passes. There follows a synopsis of the causes and the delays that we have suffered to the point where, in 1979, we are still fighting to survive, and hopefully, to move forward.

National Environmental Policy Act (NEPA)

This act established the requirements for environmental impact statements and, consequently, the time required to prepare and process them.

Since the Hampton Roads project required a federal permit, the U.S. Army Corps of Engineers was designated as the lead U.S. agency and charged with the responsibility of preparing the Environmental Impact Statement (EIS). The Corps, in turn, established a procedure to fulfill the requirements of NEPA, and this procedure was issued as a regulation under CFR.

The procedure itself is complicated and time consuming, as indicated by the following required processing steps:

1. Reception of application;

2. Review in-house;

3. Preparation of public notice;

4. Publication for comments;
5. Certifcation of company's nomination for independent third-party to prepare environmental assessment report;
6. Preparation of assessment report;
7. Reception of assessment report and analysis;
8. Request for technical evaluation from a number of agencies -- EPA, Fish and Wildlife, National Marine Fisheries, and others;
9. Return to third party for additional information, if needed;
10. Preparation of draft EIS (prior to and during this time applicant must apply for and get all local and state permits);
11. Publication of draft EIS and distribution for comments;
12. Reception of comments and preparation of proposed final EIS (it may have to return to third party for additional work);
13. Scheduling and holding public hearing;
14. Reception of comments for 30 days after hearing;
15. Review of public comments and submitted material;
16. Preparation of final questions for consultants and company;
17. Reception of answers and preparation of final EIS;
18. Distribution of final EIS and request for federal comments;
19. Review in-house and recommendations to division level;
20. Division review of project and record, then forwarding to Chief of Engineers with endorsement; and
21. Chief of Engineers review of record and final decision (if the Department of Interior has objections to the project, the final decision is made by the Secretary of the Army).

On any project that is controversial, it has been stated that the minimum time to process a permit is three years.

Delays can be experienced at almost any point in the aforementioned procedure by one or more of the following:

1. Delay in state permits;
2. Delay in review by federal agencies on the various stages of the EIS;
3. Opponents' delaying tactics -- for example, the raising of excessive questions by submitting voluminous materials;
4. Deficiencies in the EIS; and
5. Changes in federal and other laws.

In our case, some delays were encountered at several points, outlined below:

1. Air quality portion of the assessment report;
2. Delay in processing of certain state permits;
3. Opponents' submission of lengthy documents at every step of the way and at the public hearing;
4. Change in waste water discharge provisions, requiring new state permit;
5. Governor's delay in making state's position known; and
6. Federal agencies' objections, requiring attempt to resolve them at each level.

Federal Water Pollution Control Act

In the initial plans of the HREC project, it was intended to utilize the projected HRSD plant at Pig Point to process the refinery waste water and, in turn, to use the plant effluent as make-up-water. This decision was based on the 1972 Federal Water Pollution Control Act (FWPCA) requirement that by 1983 all industrial waste be pretreated and delivered to a municipal plant for final treatment. This requirement is based on available capacity of the area's plants. Since the Pig Point plant would be new -- with a 20 MM gallon capacity and a 12 MM gallon utilization factor -- the capacity for HREC would exist. The FWPCA also states that in the event capacity is available, new sources could be denied an NPDES permit for direct discharge.

It was not until after the draft EIS was completed that we learned that the projected HRSD plant had encountered troubles and, in all probability, would not be completed by the time the refinery was on-stream. Therefore, we had to backtrack and apply for an NPDES permit to discharge the treated waste into the Elizabeth River. The delay in filing the permit application and the considerable negotiations with the State Water Control Board caused additional delay. Here again, the opposition made every effort to delay the Board and in fact did cause considerable delay. Even after the permit was granted, opponents filed suit in both circuit and federal district courts to have the permit voided.

Clean Air Act

The original HREC air permit was filed in March 1975. It was analyzed by the State Air Pollution Control Board and the EPA. Although Virginia was a nonattainment area for ozone at that time, the permit was granted because Virignia was not a hydrocarbon control area. EPA did not object to the permit being issued then or in the next six months. It was not until the Army Corps' hearing that EPA "got into the act."

We suspect that the objections voiced by an environmental group and its attorney caused EPA to take this stance. At that time, however, it was apparent that Virginia could not meet the ozone standard and that the attainment date of 1977 would expire before we could get into construction.

The standard has since been eased. But as was true in 1975 and is true now, the law is the law. If EPA had not taken a negative stance, we would have had another court case and could have lost it.

In an effort to comply with the law, EPA established the emission offset rule in September 1976 to allow industrial sources to locate in nonattainment areas. We, as much of the industrial world, objected to the offset rule, but to no avail. Subsequently, Congress made EPA's rule law in the Clean Air Act Amendments of 1977.

Since 1976, we have had to endure the constantly changing, increasingly tough, air regulations. However, we have finally reached the point where all conditions of the Act have been met. In this respect, we are fortunate. Future industrial projects may have an impossible row to hoe.

Summary

These are the three laws that have most affected us. Any action to shorten the process, as required by these and other environmental laws, lies with Congress -- either to amend the existing laws or to write new laws whereby justifiable new procedures are established. A piecemeal effort is not the long-term solution.

Ours is just one typical example. There are many others in our nation. If we are to have industrial growth based on the consumer and security needs of our nation and at the same time truly and expeditiously clean up our industrial environment, we must have new policies and new ground rules. We cannot afford to cater to well-meaning, but prejudiced groups that seem always to want to build the plants somewhere else and transfer environmental problems or not to build the plants at all.

Actually, these new plants are clean, and the transfer of pollution cannot be eliminated because winds and water know no regional boundaries. Delays such as we have experienced cost money and security. We are now importing over two million barrels a day of refined fuels into the East Coast. What will happen if and when we face another oil embargo, if we have no refineries to manufacture the fuels we need?

We must halt the trend toward "balkanization" of our country. Energy and the environment can be compatible and mutually beneficial to all citizens. They must be handled in a balanced way if our nation is to survive and prosper. Congress and the Administration should act and cooperate in a program that will provide the nation with clean fuels in a cleaner environment. My industry, if given half a chance, will do its full share.

original signed by

John K. Evans
President

NOTE: On December 29, 1979, after the above aide memoire was written, the HREC received its Corps of Engineers permit. On January 25, 1980, the EPA approved the PSD permit and that portion of the Virginia State Implementation Plan which contains the necessary trade-offs for the proposed refinery's hydrocarbon emissions. All government requirements at long last have been met.

Serious legal obstacles, however, remain. Slow federal funding and construction delays in building the proposed sewage plant that was to receive the refinery waste water made it necessary for the HREC to apply for an NPDES permit. This permit, when granted, was challenged in both the State Circuit and District Federal Courts. The State Court ruled in the HREC's favor. At the time of this writing, however, the federal suit is still pending. Additional court challenges may be in the offing. One environmental group has announced plans to file suit in opposition to the dredging permit. Another group is reported to be planning court challenges opposing the PSD permit and the Virginia State Implementation Plan, both approved by the EPA in January 1980.

Nine years have now elapsed since the plan for a refinery first emerged. The delays to date have been costly in a number of ways. Valid permits issued by state agencies, for example, expired and had to be renewed. Additional unforeseen requirements kept coming and had to be complied with. Costs rose dramatically. As noted in the aide memoire, the HREC has invested more than $7 million in day-to-day costs in administration, engineering, environmental consultants, and legal fees. As for the estimated cost of the refinery project itself, it rose from $350 million in 1975 to more than $800 million in 1980.

Valuable time has been lost. Important national needs have gone unmet. And completion of the refinery, even if construction should begin in 1980, still lies several years away. But in the words of HREC's President John Evans: "At least this facility has 'broken through,' and it will be the first grass roots refinery to be built on the East Coast in over 20 years. We can only hope that this landmark case will assist projects in our industry and in other industries in the years to come."

Case 4. Oil Shale Development, Western Colorado, Atlantic Richfield Company

Introduction

The purpose of this memorandum is to summarize Atlantic Richfield Company's observations concerning legislative and regulatory requirements which may impose delays upon commercial development of oil shale.

Atlantic Richfield Company is operator of Colony Development Operation, a joint oil shale development venture with Tosco Corporation. From 1969 to 1972, Colony modified and operated a 1,000 ton per day oil shale retort in western Colorado. This demonstration program cost $16 million, including environmental studies in excess of $3 million. These environmental studies included assessments of potential impacts that the construction and operation of a commercial shale oil complex could have upon air, land, wildlife, water, vegetation, and socioeconomic conditions.

The engineering data and information obtained from environmental assessments were utilized in the engineering design of a proposed commercial facility which would mine 66,000 tons of shale per day and produce 47,000 barrels of refined shale oil per day. By 1974, over 400,000 engineering manhours had been expended in the development of the commercial plant design, with definitive cost estimates and a construction schedule based upon firm quotes obtained from vendors. During the course of the design, however, inflation and scope changes in part caused by new environmental requirements caused the cost of the project to double to almost $900 million. Present estimates are in excess of $1.5 billion. It was, then, necessary to suspend construction plans, except for the completion of a pioneer road to the plateau and a railroad spur in Grand Valley.

We have, however, attempted to maintain the viability of the project by seeking necessary permits, water contracts, and other approvals which would be required prior to reactivation. We believe Colony to be in a leading position with respect to commercialization, since no other project has the potential ability to be producing shale oil in commercial quantities within five to six years. In order to meet this expectation, however, a number of obstacles still must be overcome.

Environmental Impact Statements

Colony began providing results on environmental analyses to the Bureau of Land Management in 1973, for its use in preparing an Environmental Impact Statement. By 1974, the BLM had assembled a team to work on the Statement, but it was not completed and submitted to CEQ in final form until mid-1977.

The BLM has stated that it will determine, when Colony announces project reactivation, whether a supplemental environmental impact statement will be required. Presumably, a supplemental statement would need only to address any changes in baseline conditions or operating plans that may have evolved since the initial assessment. Since these are minor, we would not expect another major effort to be required. But necessary hearings and public comment periods, combined with the time required to organize a team and prepare a supplemental statement, could lead to further substantial delay.

Water

Water is legally available to support a mature (that is, one-to-two million barrels per day) oil shale industry in Colorado, but it would be necessary to construct reservoirs to provide physical availability of the water. For the near term, existing storage is adequate to provide supplemental water suplies for first generation commercial plants.

In 1973, Colony had reached agreement in principle with the Bureau of Reclamation on a contract for the purchase of water from Green Mountain Reservoir to supplement existing commercial water rights, but further action could not be taken until a final EIS was completed. By the time the final EIS was completed in 1977, however, the Bureau of Reclamation advised that no previous agreements were valid and that Ruedi Reservoir was a preferable source of supply. We accordingly requested an option for water from that reservoir. After soliciting statements of interest from various potential users of this reservoir, the Bureau concluded that administration of the reservoir should be turned over to the Colorado River Water Conservation District (CRWCD). For the past year, the Bureau has been attempting to develop a basis of negotiation for contracting with CRWCD, but we have perceived no progress in this area.

Land Exchange

Several isolated parcels of federal land totaling about 300 acres were contained within the Colony property. If resources are not recovered from these parcels during Colony's operation, it is unlikely that they could be economically recovered at some later date. In 1973, we initiated a request to exchange a block of like reserves from the eastern edge of the Colony property for those federal reserves lying within the property boundary. Again, no action could be taken until the final EIS had been completed.

When the EIS was completed four years later, we renewed our request for a land exchange, which required a modification of Executive Order 5327 under the Federal Land Policy and Management Act (Sec. 206). Following additional review lasting almost two years, the Department of the Interior's Solicitor's Office issued a memorandum on April 24, 1979, questioning the specificity of the EIS, citing continuing studies of legislation policy options, and noting that "the final environmental statement deals with a hypothetical project that might or might not be revitalized at a later date."

Resolution of this matter was finally accomplished, and the trade was consummated in February 1980 -- seven years after this activity was initiated.

PSD Permit (Prevention of Significant Deterioration)

Colony's PSD permit, obtained in July 1979, will expire 18 months from date of issuance. If subsequent permit approvals or supplemental environmental assessments are unduly delayed, Colony will lose its ability to reactivate in a timely manner. This is a very real threat. Delays in obtaining an Office of Surface Mining permit for Atlantic Richfield Company's Coal Creek Mine in Wyoming led to receiving that permit only three days before the air quality permit was due to expire.

Other Permits

Fifty-two air quality permits have been obtained from the State of Colorado. An application to the Colorado Mine Land Reclamation Board is in preparation. According to current regulations, this application will need to be preceded by an application for an NPDES permit, even though the NPDES permit would expire within five years, prior to any discharge. (The only discharges contemplated will be of river water into Parachute Creek and the Colorado River, as a result of maintaining stream flows and the one-time hydrostatic testing of a product pipeline.) Receipt of the NPDES permit(s) will, in turn, trigger the need for a Spill Prevention, Control and Countermeasure Plan. We have received permits from the U.S. Army Corps of Engineers for a pipeline crossing of the Colorado River in Utah and for water diversion facilities and dams to be constructed as part of the project.

Other federal permits and approvals are required for power and telephone line rights-of-way, railroad construction, transportation, use of explosives, erection of towers and structures, pipeline design, and plant construction and operation. All of these permits and approvals are required from different agencies. There are also approximately 35 permits or approvals yet to be obtained at state and local levels, in addition to the more than 50 which have already been obtained or which are mentioned above.

Not yet addressed is the possible application of new regulations which are not yet defined, including those stemming from the Resource Conservation and Recovery Act of 1976. The Committee on Surface Mining and Reclamation is also studying the applicability of Coal Surface Mining regulations to oil shale. If coal surface mining regulations were to be applied to oil shale operations and if our experience in coal mining is any indication of the delay and expense which may be imposed by such regulations, then reactivation of the Colony project in the near future would be further impeded.

Conclusions

Atlantic Richfield Company is concerned that reasonable assurance of a viable project be obtained prior to committing to the substantial expense of reactivating the Colony project. Such assurances include enactment of a meaningful tax credit or equivalent economic incentives and obtaining major permits, approvals, and water contracts. Even then, we will need to accept the continuing risk of litigation or other unforeseen delays, such as we experienced with the Alyeska pipeline and with our Black Thunder Coal Mine, where environmental litigation caused several years of delay in construction and operation.

Congressional action to expedite oil shale development should include the definition of requirements and economic incentives as soon as possible and assurance that they will not be changed. Prompt definition need not preclude proper environmental safeguards which already exist within current federal, state, and local regulations.

VI. PETROLEUM INDUSTRY SURVEYS

American Petroleum Institute Survey of Delays of Energy Projects Resulting from the Clean Air Act

Mid-Continent Oil and Gas Association Survey of Corps of Engineers Permit Delays

American Petroleum Institute Survey of Delays of Energy Projects Resulting from the Clean Air Act

On June 18, 1979, the American Petroleum Institute released a paper entitled "Major Legislative and Regulatory Impediments to Conventional and Synthetic Fuel Energy Development" (revised September 7, 1979). The paper, which subsequently became the basis for this booklet, cited specific provisions in environmental, land use, and other laws that have created constraints on energy development and listed 25 major energy projects that have been affected -- that is, have been delayed or abandoned because of these constraints.

Classical examples of such projects include lost heavy crude oil production of almost 100,000 barrels per day in Kern County, California; abandonment of a pipeline intended to carry Alaskan crude oil from Long Beach, California, to Midland, Texas, from which it was to have been sent via existing pipelines to cities throughout the Midwest and East; and a nine-year delay in the construction of a 175,000 barrel per day refinery at Portsmouth, Virginia. These are among the 26 examples noted above in Chapter II: Specific Examples of Delayed, Denied, and Abandoned Energy Projects.

During June and July of 1979, the Institute conducted a survey among its member oil companies to determine how far the constraints of the Clean Air Act alone extend beyond the major examples noted above, this act being considered by many to be the most serious environmental impediment not only to energy development, but also to industrial growth in general. It was discovered that the constraints of this single act extend to projects which are relatively small, but which in aggregate constitute a major blow to the nation's energy development.

Of the nine companies that responded, four are experiencing no crippling difficulties with construction permitting at the present time, but all anticipate difficulties in the future as increasingly stringent air pollution requirements materialize. The remaining five companies have encountered difficulties within the last two to three years. Some of their permits, after significant delay, were granted, but others are still pending.

It was also discovered that the requirements of the Clean Air Act are so complex as to result in delays for many different reasons. The problems arise in large part because of the demanding requirements of the prevention of significant deterioration (PSD) and nonattainment provisions of the Act. Proposed major industrial facilities in PSD areas, for example, must:

- Collect extensive air quality data;

- Undergo extensive air quality analysis by the state and EPA to ensure that no increment on national air quality standards will be exceeded;
- Report on any adverse effects on plants and soils and on any adverse air quality effects from any residential growth associated with the new plant; and
- Ensure that anticipated emissions will not adversely affect federal lands -- for example, will not impair visibility.

If it were strictly interpreted, the Clean Air Act could lead to a ban on construction of air polluting sources in nonattainment areas. To allow for new growth, the offsets policy developed by EPA will permit new construction in nonattainment areas only if the most stringent air pollution controls are installed and a more-than-equal amount of air pollution is eliminated. Furthermore, each state must submit and secure EPA approval of a state implementation plan (SIP) that shows how it will attain the new air quality standards by 1982 or, in some cases, by 1987. The state must show how it will reduce emissions to meet the standards by:

- Imposing tighter controls on existing sources in the nonattainment area;
- Limiting building of new sources; and
- Imposing controls on the use of automobiles.

It remains to be seen just what effect EPA's "bubble policy," announced in late 1979, will have on the construction of energy facilities.

One consequence of the above provisions is that in many cases both PSD and nonattainment requirements apply to a proposed new facility, since the same air quality control region may be nonattainment for some pollutants and PSD for others.

The law itself calls for lengthy processing periods. But inordinate project delays result when these PSD and nonattainment provisions are applied to the regulatory process. Prolonged discussions involving the proper interpretation of regulations stemming from these provisions too often arise during the permit application process. A lack of qualified agency manpower means that permits cannot be promptly processed. The project must often wait until state and federal nonattainment or PSD policy conflicts are resolved. Third-party intervention often brings injunctions against construction until the issues, already settled between the regulatory agencies and the applicant, are heard all over again in court. Repeated modification of emission control methods as new regulations are developed add delays, because the permit application must adjust to construction plans. Finally, unnecessarily long public notice requirements add still more time to the permitting process.

A summary of the results of the Institute's mid-1979 survey appears in tabular form at the end of this chapter.

Mid-Continent Oil and Gas Association Survey of Corps of Engineers Permit Delays

The Mid-Continent Oil and Gas Association has surveyed oil and gas permits issued by the U.S. Corps of Engineers in southern Louisiana from September 1, 1978, through April 30, 1979. Companies that had requested permits were asked to provide specific information about delays, costs incurred, and production lost or deferred. Forty companies responded to the survey. Of these, 23 reported problems with one or more permits.

During the eight-month period studied, 89 permits received by respondents were objected to by various government agencies, associations, and private individuals. These included the U.S. Fish and Wildlife Service (FWLS), National Marine Fisheries Service (NMFS), Louisiana Shell Producers Association, and the U.S. Corps of Engineers. The agencies involved in the most delays were NMFS and FWLS. In all, NMFS objected to or otherwise delayed the issuance of 59 permits. FWLS objected to or delayed 23 permits. Since all but two of these permits have been issued, it can be assumed that the objecting agencies either (1) failed to make their case or (2) the companies chose to use more expensive methods of drilling to satisfy objections.

Companies were asked to estimate costs resulting from permitting delays. Cost increases were reported on 57 of the 89 permits in the survey. Two such reports included only clerical costs (a total of $600 for each permit) and are not included in the grand total -- $19,752,739 for 55 permits. According to a recent report of the Joint Association Survey on Drilling Costs, this amount is enough to drill 32 oil wells in southern Louisiana, one of the highest-cost drilling areas in the nation.

Companies responding to the survey further estimated that 428,000 barrels of oil and 14.9 billion cubic feet of gas were lost or deferred due to these permit delays.

Results of the Mid-Continent Survey are found in tabular form at the end of this chapter.

AMERICAN PETROLEUM INSTITUTE SURVEY OF DELAYS OF ENERGY PROJECTS RESULTING FROM THE CLEAN AIR ACT

TYPE AND SIZE OF PROJECT	LOCATION	AIR QUALITY DESIGNATION	POLLUTANTS INVOLVED	AGENCIES INVOLVED	PERMIT ACTION	REASONS FOR DELAY
Refinery and modernization and expansion, from 100,000 to 190,000 bbl/day	Old Ocean, Texas	PDS Nonatt.	(Increments available HC	State; Regional EPA	Delay	PSD litigation; Resolution of state-federal nonattainment policy conflicts
Crude unit replacement furnace, 150 MM Btu/hr	Corpus Christi, Texas	PSD Nonatt.	Part., SO_2, NO_x HC	State	Delay	Requirement for construction permit in order to enforce NSPS
Amine unit, 5 MM scf natural gas/day	Dimmit County, Texas	PSD	SO_2	State	Delay	Processing time
Coker preheat system modification, 36,000 bbl/day processing of high-sulfur crude	Texas City, Texas	PSD Nonatt.	Part., SO_2 NO_x HC	State	Delay	State: Settlement of all outstanding issues; Regional EPA: Lack of manpower
Eight steam generators, 50 MM Btu/hr each	Kern River, California	PSD Nonatt.	NO_x Part., SO_2 HC	Local; State; Regional EPA	Delay	Repeated modification of control methods as new regulations developed

TYPE AND SIZE OF PROJECT	LOCATION	AIR QUALITY DESIGNATION	POLLUTANTS INVOLVED	AGENCIES INVOLVED	PERMIT ACTION	REASONS FOR DELAY
Five steam generators, 50 MM Btu/hr each; One heater treater, 12.6 MM Btu	North Mt. Poso, California	PSD	SO_2	State	Withdrawal of application by company	Project uneconomic because of requirement for SO_2 scrubbing
Ultraformer expansion unit, 11,000 bbl/day	Texas City, Texas	PSD Nonatt.	Part., SO_2, NO_x HC	State; Regional EPA	Delay	State: Settlement of all outstanding issues; Regional EPA: Lack of manpower
Fluid catalytic cracking unit expansion, 4,000 bbl/day gasoline	Texas City, Texas	PSD Nonatt.	Part., SO_2, NO_x HC	State; Regional EPA	Delay	State: Settlement of outstanding issues; Regional EPA: Lack of manpower
Ultraformer expansion unit, 1,000 bbl/day capacity and 150,000 octane-bbl/day	Texas City, Texas	PSD Nonatt.	Part., SO_2, NO_x HC	State; Regional EPA	Delay	State: Settlement of all outstanding issues; Regional EPA: Lack of manpower

TYPE AND SIZE OF PROJECT	LOCATION	AIR QUALITY DESIGNATION	POLLUTANTS INVOLVED	AGENCIES INVOLVED	PERMIT ACTION	REASONS FOR DELAY
Four steam generators, 50 MM Btu/hr each; One heater treater, 12.6 MM Btu/hr.	Antelope Hills, California	PSD	SO_2, NO_x	Local; State Regional EPA; National EPA	Delay	State: Lack of modeling and requirement to add scrubbing; EPA: Delay in establishing BACT for NO_x
Lubricant treating unit, 7,400 bbl/day	Houston, Texas	PSD Nonatt.	SO_2, NO_x HC	Local; State	Delay	Dispersion modeling requirements; Public notice waiting requirements
Two steam generators, 50 MM Btu/hr each	North Midway Sunset, California	PSD	SO_2, NO_x	Local; State	Delay	Lack of modeling for short-term NO_x standards
One steam generator, 50 MM Btu/hr; Two steam generators, 18 MM Btu/hr each; One heater treater, 12.6 MM Btu/hr.	South Midway Sunset, California	PSD	SO_2	State	Withdrawal of application by company	Project uneconomic because of requirement for SO_2 scrubbing
Aromatics unit modernization and expansion, from 2,300 bbl/day to 5,000 bbl/day	Beaumont, Texas	Nonatt.	HC	Regional EPA	Delay	Lack of qualified manpower in EPA Regional Office

MID-CONTINENT OIL AND GAS ASSOCIATION SURVEY OF CORPS OF ENGINEERS PERMIT DELAYS

COMPANY	TYPE OF PERMIT AND NO.	DATE APPLIED FOR	DATE GRANTED	AGENCY OBJECTING OR REQUESTING DELAY	COST OF DELAY	LOST OR DEFERRED PRODUCTION
Transcontinental Gas Pipe Line Corp.	Bay of River Aux Chenes 3, gas pipeline	11-3-78	2-23-79	Private citizen	$75,000	300 MMCF Gas
Transcontinental Gas Pipe Line Corp.	Four League Bay 31, dredge slip	9-5-78	11-8-78	National Marine Fisheries Service	None	None
Texaco	Bay St. Elaine 2-34, dredge canal	8-22-78	1-18-79	NMFS	$237,000	400 bbls. oil .44 MMCF gas per day for 47 days
Texaco	Dog Lake Bayou 1-38-1, dredge	9-12-78	12-12-78	NMFS	$62,500	175 bbls. oil .06 MMCF gas per day for 28 days
Texaco	Bayou Mennaie 3, dredge slip	11-2-78	1-24-79	NMFS	$76,000	200 bbls. oil .04 MMCF gas per day for 30 days
Texaco	Bateman Lake, Wax Bayou 59, dredge canal	6-20-78	11-16-78	NMFS	$585,000 *	120 bbls. oil 12 MMCF gas per day for 94 days
Texaco	Raphael Pass 3, dredge canal	8-30-78	12-14-78	NMFS	$231,400	600 bbls. oil .6 MMCF gas per day for 28 days

COMPANY	TYPE OF PERMIT AND NO.	DATE APPLIED FOR	DATE GRANTED	AGENCY OBJECTING OR REQUESTING DELAY	COST OF DELAY	LOST OR DEFERRED PRODUCTION
Texaco	Raphabel Pass 6, dredge canal	8-30-78	12-14-78	NMFS	$347,000	900 bbls. oil .9 MMCF gas per day for 28 days
Texaco	West Cote Blanche Bay 17, dredge channel	9-18-78	12-14-78	NMFS	$94,200	200 bbls. oil .3 MMCF gas per day for 32 days
Texaco	Johnson Pass 1-D, dredge canal extension	9-13-78	12-14-78	NMFS	$46,700	242 bbls. oil .12 MMCF gas per day for 34 days
Texaco	Lafourche Wetlands 17-E, dredge canal extension	8-11-78	12-28-78	NMFS	$82,600	12 bbls. oil 6 MMCF gas per day for 35 days
Texaco	Timbalier Bay 1-40-F2, dredge channel	1-3-79	4-6-79	NMFS	$74,215	6,420 bbls. oil
Texaco	Cameron Wetlands 197, board road	1-19-79	3-15-79	U.S. Fish & Wildlife Serv. NMFS	$463,408	210 MMCF gas
Texaco	Bay St. Elaine 1-47-B2, dredge channel	12-1-78	3-30-78	NMFS	$131,000	12,000 bbls. oil
Texaco	Timbalier Bay 1-40-Y1, pipeline	10-19-78	1-12-79	NMFS U.S. FWLS	$44,408	76 MMCF gas
Texaco	St. Charles Wetlands 47, board road	6-6-78	9-28-78	St. Charles Parish Policy Jury	Did not drill well	
Texaco	Little Lake 85, dredge channel	Objections, but moved rig at high tide so that no dredging was required				

COMPANY	TYPE OF PERMIT AND NO.	DATE APPLIED FOR	DATE GRANTED	AGENCY OBJECTING OR REQUESTING DELAY	COST OF DELAY	LOST OR DEFERRED PRODUCTION
Texaco	Lafourche Wetlands 231, dredge canal	12-15-78	7-15-79	NMFS U.S. FWLS	$116,325	225 MMCF gas
Exxon	12 permits			NMFS (8) U.S. FWLS (4)	$8,600,000	104,000 bbls. oil 4,400 MMCF gas
Quintana Petroleum	St. Mary Wetlands 44	10-20-78	1-30-79	NMFS U.S. FWLS	$54,500	720 MMCF gas 9,600 bbls. condensate
Quintana Petroleum	Thorgeson Canal 3, dredge canal	12-11-78	3-19-79	NMFS	NA	480 MMCF gas 3,600 bbls. condensate
Quintana Petroleum	Terrebonne LTMA 400-E, canal extension	9-7-78	4-30-79	NMFS U.S. FWLS	$200,000	exploratory well
Amoco	Bay Tambour 12, dredge to maintain	6-29-78	12-5-78	NMFS	$50,000	None
Amoco	Plaquemines Wetlands 116, dredge slip	9-13-78	2-7-79	NMFS	None	None
Amoco	St. Martin Wetlands 1, renovate levee	12-8-78	2-28-79	NMFS	None	None
Amoco	Terrebonne Wetlands	12-11-78	3-12-79	NMFS	$30,000	6.4 MMCF gas 1,280 bbls. condensate
Amoco	Terrebonne Wetlands 188, board road	6-26-78	10-10-78	NMFS	$10,000	36 MMCF gas 720 bbls. condensate
Amoco	Cameron Wetlands 228, dredge slip	10-31-78	2-13-79	NMFS	NA	4,114 bbls. oil
Amoco	SWGCO-RP 12881, drill site	5-30-78	10-19-78	U.S. FWLS	None	None

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COMPANY	TYPE OF PERMIT AND NO.	DATE APPLIED FOR	DATE GRANTED	AGENCY OBJECTING OR REQUESTING DELAY	COST OF DELAY	LOST OR DEFERRED PRODUCTION
Amoco	SWGCO-RP 12943, access road	6-21-78	9-15-78	U.S. FWLS	None	None
Energy Reserves Group Inc.	Lake Pontchartrain 354, drilling structure	6-29-78	10-12-78	La. Shell Producers Assn.	$300	None
Energy Reserves Group	Lake Pontchartrain 352, install platforms	5-18-78	7-25-78	La. Shell Prod. Assn.	$300 (clerical)	None
Energy Reserves Group	Grand Pass 52, dredge canal	6-11-77	11-14-78	NMFS	$1,000	None (dry hole)
Goldking Prod. Co	Grassy Lake 8, dredge extension	10-3-78	4-19-78	U.S. FWLS	$550,00	50,000 bbls. oil
Goldking	Lake Fortuna 26, erect structure	8-15-78	11-27-78	NMFS	$354,000	228 MMCF gas
Goldking	Little Pecan Bayou 2-C, dredge canal ext.	7-1-78	10-10-78	NMFS	$656,000	328 MMCF gas
Goldking	Lafourche Wetlands 230, board road	12-1-78	3-27-79	NMFS	$186,000	120 MMCF gas
Goldking	St. Bernard Wetlands 18, maintenance dredge	8-15-78	3-21-79	NMFS U.S. FWLS	$810,000	540 MMCF gas
Goldking	Cameron Wetlands 168, board road	1-12-79	4-25-79	Held up for directional feasibility statement to Corps of Engineers	$120,000	12,000 bbls. oil
Truckline Gas	Pipeline	9-15-78	4-4-79	NMFS	NA	NA
Truckline Gas	Pipeline	9-15-78	4-5-79	NMFS	NA	NA (made moot by aerial cross)

COMPANY	TYPE OF PERMIT AND NO.	DATE APPLIED	DATE GRANTED	AGENCY OBJECTING OR REQUESTING DELAY	COST OF DELAY	LOST OR DEFERRED PRODUCTION
Houston Oil and Minerals	Pipeline	11-13-78	1-22-79	U.S. FWLS	NA	NA
Houston Oil and Minerals	Board Road	11-14-78	1-30-79	U.S. FWLS NMFS	$100,000 (due to location change)	NA
Shell Oil	Weeks Bayou 92	6-30-78	12-5-78	NMFS	None	None
Texas Crude Inc.	Terrebonne Wetlands 228, board road	8-9-78	3-5-79	U.S. FWLS	$10,000	None (dry hole)
Texas crude	St. James Wetlands 11, board road	9-6-77	10-12-78	U.S. FWLS	$100,000	None (dry hole)
McMoran Exploration	Plaquemines Wetlands, 112 dredge canal	8-4-78	11-15-78	U.S. FWLS NMFS	$50,000	None
McMoran	Plaquemines Wetlands 115, dredge canal ext.	8-28-78	12-5-78	NMFS	$46,036	None (dry hole)
McMoran	Terrebonne Wetlands 229, board road	9-7-78	12-14-78	NMFS	None	None
McMoran	Terrebonne Wetlands 233, board road	9-27-78	1-3-79	NMFS	None	None
Exchange Oil and Gas	Atchafalaya Floodway 227, dredge canal	1-11-79	Not issues as of 6/29/79	U.S. FWLS	NA	3 MMCF gas per day for 180 days
Exchange	Little Pigeon Bayou 35, dredge canal	8-17-78	11-8-78	Corps of Engineers	NA	None

COMPANY	TYPE OF PERMIT AND NO.	DATE APPLIED	DATE GRANTED	AGENCY OBJECTING OR REQUESTING DELAY	COST OF DELAY	LOST OR DEFERRED PRODUCTION
Exchange	Cameron Wetlands 29, dredge canal ext.	9-15-78	1-11-79	NMFS	NA	NA (7 wells involved)
Stone Oil Corp.	Vermilion Wetlands 13, board road	8-29-78	1-9-79	NMFS	$300,000	200 MMCF gas
Stone Oil	Vermilion Wetlands 13, board road	8-6-78	11-28-78	NMFS	$1,000,000	500 MMCF gas
Pennzoil Producing Co.	Terrebonne Wetlands 235, dredge slip	10-4-78	1-12-79	NMGS An oyster fisherman	NA	NA
Pennzoil	Bayou Penchant 2, maintenance dredging	6-21-78	2-15-79	NMFS	NA	NA
Union Oil of Calif.	Vermilion Wetlands 31, bulkhead & canal fill	12-28-78	6-8-79	NMFS	NA	NA
Union Oil	Lake Pontchartrain 368, erect structures	12-13-78	3-23-79	La. Shell Producers Assn.	None	None
South La. Production Co.	Atchafalaya Floodway 267, dredge canal	8-25-78	3-1-79	U.S. FWLS	$2,212,663	630 MMCF gas,25,200 bbls. condensate
Anschutz Corp	Lake Salvador 79, dredge channel	7-7-78	10-4-78	NMFS	None	None (dry hole)
Anschutz	Bayou LaFleur 5	6-27-78	10-30-78	NMFS	$5,000	None (dry hole)
Amerada Hess Ethyl Corp.	Atchafalaya Floodway 235, dredge canal ext.	10-15-78	1-16-79	U.S. FWLS	$285,000	22,400 bbls. oil
Amerada Hess Ethyl	Lafourche Wetlands 228, dredge slip	11-30-78	3-5-79	U.S. FWLS NMFS	$8,000	15,000 bbls. oil
Amerada Hess Ethyl	Lafourche Wetlands 229, dredge slip	11-30-78	Pending	NMFS U.S. FWLS	$700,000	60,000 bbls. oil

COMPANY	TYPE OF PERMIT AND NO.	DATE APPLIED FOR	DATE GRANTED	AGENCY OBJECTING OR REQUESTING DELAY	COST OF DELAY	LOST OR DEFERRED PRODUCTION
Gulf Oil	Timbalier Cay 229, dredge	6-9-78	9-25-78	NMFS, Lafourche Policy Jury		
Gulf	Grand Bay 2-D, dredge	7-25-68	12-22-78	NMFS		
Gulf	Lafourche Wetlands 208, dredge	6-21-78	10-3-78	NMFS		
Gulf	West Bay 2-M, dredge	6-26-78	12-7-78	NMFS		
La. Land and Exploration	Plaquemines Wetlands 110, dredge & maintain canal	7-9-78	12-14-78	NMFS U.S. FWLS	NA	NA
Pogo Producing Co.	Brownell-Kidd No. 1, board road	2-9-78	Pending	U.S. FWLS	$100,000	NA
Patrick Petroleum	St. John Wetlands 14, board road	8-31-78	1-17-79	U.S. FWLS	$537,000	3,660 bbls. oil 183 MMCF gas
Chevron USA	Little Rigolets 7, dredge slip	1-26-79	4-30-79	NMFS	NA	NA
Chevron	Little Rigolets 8, dredge slip	1-26-79	4-30-79	NMFS	NA	NA
Chevron	St. Catherine Pass 3, dredge slip	1-26-79	4-30-79	NMFS	NA	NA
Chevron	Counterfeit Pass 1, dredge canal	9-27-78	12-28-78	NMFS	$3,750	NA
Chevron	Bay Jaune 2	9-19-78	12-5-78	NMFS	$6,685	NA
Chevron	Lake St. Catherine 26, dredge canal	8-11-78	11-9-78	NMFS	NA	NA

EXHIBIT II

KERN COUNTY CRUDE OIL PRODUCTION

MONTH	HEAVY OIL PRODUCTION BBLS/MONTH	TOTAL PRODUCTION BBLS/MONTH
	1979	
JUNE	9,348,313	15,893,737
JULY	9,568,001	16,430,509
AUGUST	9,702,249	16,462,300
SEPT.	9,307,269	15,869,102
OCT.	9,639,686	16,514,085
NOV.	9,491,202	16,117,391
DEC.	9,745,099	16,651,927
	1980	
JAN.	9,452,658	16,183,178
FEB.	9,218,808	15,385,312

SOURCE: CALIFORNIA DIVISION OF OIL & GAS
BAKERSFIELD, CALIFORNIA OFFICE.

EXHIBIT III

KERN COUNTY PERMITTING CHRONOLOGY

September 26, 1974	Initial correspondence that started Air Impact Assessment study for steam generators on the Westside of Kern County.
February 24, 1975	Review by Kern County Air Pollution Control District (KCAPCD) revealed inadequate equipment inventory.
May 30, 1975	Environmental Protection Agency (EPA) recommends to the Kern County Health Department that permits not be granted due to inadequate modeling.
November, 1975	Air Quality Impact Assessment (AQIA) for the Westside was submitted by Science Applications, Inc. (SAI) - included proposed sources up to January 1, 1977. Based upon Bakersfield meteorological data since monitors did not exist on the Westside.
February 26, 1976	Start of the second AQIA (proposed sources from January 1977 to January 1979). More monitoring data needed on the Westside, thus remodeling.
	Note: EPA delayed permitting of all permits from December 1975 to June 1976 until they evaluated Getty's project in Kern River.
June 18, 1976	Belridge letter to the Westside operators requesting that the companies firm up their inventories for the AQIA.
	Note: The burden was placed on individual oil companies to get the inventory together.

July 9, 1976	SAI releases six months of meteorological data (through June 1976) to the EPA to process old pending permits.
November 2, 1976	SAI informs the Westside operators of EPA's offset policy (e.g. hydrocarbons and particulates emitted from steam generators only - direct sources of pollutants). EPA also indicates scrubbers for SO_2 will not be required.
December 21, 1976	EPA offset Interpretive Ruling.
January 4, 1977	KCAPCD informs the Westside operators of the additional requirement of vapor recovery on "steam affected" wells. The installation of the vapor recovery system will require the issuance of a permit.
April 22, 1977	SAI AQIA released with updated inventory.
April 25, 1977	SAI reviews with EPA the possibility of a non-attainment designation of SO_2 (federal SO_2 standard).
June 1, 1977	Discussion between the Westside operators to do additional work in the North Midway-Sunset area regarding SO_2 reductions as a result of EPA's Interpretive Ruling (December 21, 1976).
June 15, 1977	SAI to start North Midway-Sunset AQIA.
June 23, 1977	EPA hires Stanford Research Institute (SRI) to independently model the Westside to check SAI's modeling efforts.
July 27, 1977	EPA discusses the need with the KCAPCD to revise the State Implementation Plan (SIP) for SO_2. EPA interprets their Interpretive Ruling for the North Midway-Sunset area as to mean a no net increase in SO_2.

July 28, 1977	EPA, KCAPCD, and Westside operators meeting. - Based upon April 22, 1977 AQIA, EPA will issue non-North Midway-Sunset permits. - EPA non-committal on manifolding of stacks.
August 1, 1977	Westside operators inform EPA the impact of SO_2 will be reduced through manifolding, tall stacks, and reduction in the amount of equipment.
September 23, 1977	SAI releases North Midway-Sunset AQIA with manifolding included.
September 23, 1977	EPA publishes tentative approval for proposed steam generators in the April AQIA.
September 28, 1977	KCAPCD publishes tentative approvals.
October 24, 1977	California Air Resources Board (CARB) letter to KCAPCD regarding CARB's concern with exceedances of the new state 24-hour SO_2 standard (0.05 ppm).
November 3, 1977	Prevention of Significant Deterioration (PSD) regulations published.
November 15, 1977	KCAPCD meeting with Westside operators to discuss the impact of PSD regulations. Industry hires a consultant to speed up permitting with the county to meet the March 1, 1978 PSD deadline.
December 1, 1977	CARB expresses concern to KCAPCD regarding control of SO_x for state standards. Proposes additional monitoring and further reductions in SOx.

December 30, 1977	Short-term modeling of SO_2 completed by SAI for the KCAPCD.
January 5, 1978	SO_2 Non-Attainment Plan (NAP) shows no federal exceedances. CARB designates Kern County non-attainment for federal SO_2 standard in light of no historical exceedances.
January 10, 1978	Westside operators' presentation to the Kern County Board of Supervisors to resolve permitting problems.
January 10, 1978	EPA tells CARB that the SIP for SO_2 in Kern County is substantially inadequate to maintain federal standard.
January 14, 1978	SAI data showing no exceedances of the state SO_x standard on the Westside.
January 16 & 17, 1978	KCAPCD issues public notices on Westside based on April 1977 AQIA.
January 16, 1978	EPA tells Kern County Board of Supervisors that only EPA's permit approval is necessary prior to March 1, 1978 to meet pre-PSD permit requirements.
January 17, 1978	Kern County Board of Supervisors meeting with CARB and EPA to resolve permitting problems.
January 25, 1978	Regarding state SO_2 and SO_x standards, CARB requests KCAPCD to adopt (1) SO_x and fuel regulations for existing steam generators, (2) Best Available Control Technology (BACT) for SO_2, NO_x, and particulates for new generators, and (3) offset requirements for hydrocarbons, SO_x, NO_x, and particulates for new equipment.

January 26, 1978	CARB threatens to take over KCAPCD duties through emergency authority at public hearing.
January 30, 1978	CARB requests KCAPCD that all public notices issued Janaury 16 and 17 be rescinded due to improper review of New Source Review (NSR) Rule 210.1.
February 2, 1978	Kern County Board of Supervisors decide against rescinding public notices.
February 2, 1978	Western Oil and Gas Association (WOGA) files suit against CARB to prevent a takeover of KCAPCD duties and to invalidate the state SO_2 and SO_x standards.
February 10, 1978	KCAPCD meeting with EPA. EPA agrees that Kern County was attainment for SO_2.
February 15, 1978	EPA informs the Kern County Board of Supervisors that county permits must be obtained before March 1 to escape PSD requirements.
February 17, 1978	CARB files for a temporary restraining order (TRO) against KCAPCD to prohibit the issuance of permits.
February 21, 1978	CARB informs all oil companies in Kern County that all public notices published January 16 and 17 are invalid. Also, CARB threatens to take over KCAPCD duties.
February 22, 1978	Kern County Superior Court denies CARB's TRO against KCAPCD; also the Superior Court desolves WOGA's TRO against CARB and denies WOGA's motion for preliminary injunction.

April 24, 1978	SAI uses new Texas Episodic Model for short-term NO_x.
April 26, 1978	CARB public hearing on model rule to control SOx/NO_x on steam generators in the San Joaquin Valley.
May 5, 1978	EPA reviews Kern County New Source Review - final rule approvable with exception: - Does not apply to secondary emissions (e.g. cargo carriers). - No emission offset credit is allowed for hydrocarbons. - Emission offsets are required in non-attainment areas.
May 8, 1978	KCAPCD requests NO_x recomputation with updated inventory and new emission factors.
May 17, 1978	Both CARB and WOGA withdraw legal claims regarding KCAPCD issuance of permits. WOGA files an amended complaint to delete Kern County permit issue. State SO_x standards are still to be litigated.
May 30, 1978	SAI modeling is held up due to indecision of EPA for BACT-NO_x control.
June 16, 1978	Update inventory to complete computer modeling.
July 7, 1978	KCAPCD request -- the inventory of existing equipment must be identified by KCAPCD permit number.
July 12, 1978	CARB informs all operators that KCAPCD is not issuing permits consistent with NSR and to meet with CARB on an individual basis. CARB intends to adopt new model rules for the county to retrofit NOx and SO_x control on new and existing generators.

September 14, 1978	CARB meets with oil companies to discuss permitting problems and their interpollutant trade-off policy.
October 19, 1978	EPA finalizes BACT-NO$_x$ control as being determined on a case-by-case basis with a minimum of combustion modification. Must show cause why ammonia injection cannot be used.
November 15, 1978	AQIA was released to the KCAPCD.
November 17, 1978	CARB's voluntary compliance with interpollutant trade-off criteria. If companies do not wish to comply, then CARB will assume the powers of the KCAPCD.
January 8, 1979	KCAPCD points out deficiencies in latest AQIA. NO$_x$ must be remodeled to include natural gas fired equipment. Also, all permit applicants must submit new applications because of a change in BACT-NO$_x$ requirement by EPA.
March 23, 1979	CARB hearing to adopt an SO$_2$ rule for Kern County to control SO$_2$ emissions from both new and existing steam generators.
March 23, 1979 June 30, 1979	Industry applies for 98 new permits for steam projects under existing 210.1 "Standard for Authority to Construct" adopted by the KCAPCD. Approximately 150 prior permits have still not been issued by the County.
July 1, 1979	Permit ban in California mandated by the Clean Air Act takes effect because State does not have in operation a State Implementation Plan approved by the Administrator that satisfies the Clean Air Act requirements for control of mobile and stationary sources.

September 7, 1979	CARB Public Hearing on KCAPCD Rule 210.1 "Standards for Authority to Construct." CARB attempts to block KCAPCD issuance of all pending permits until completion of CARB action on revisions to Rule 210.1. Revisions proposed by CARB, if adopted, would require additional SO_2 and NO_x offsets from companies before permits could be issued.
September 11, 1979	KCAPCD issues permits for 148 steam generators due to California State Assembly Bill 884 which forces the county to make a decision to approve or deny the permits.
September 12, 1979	CARB amends KCAPCD Rule 210.1 - New Source Review and makes the determination that the cut off date for existing sources is Dec. 28, 1976. Nitrous oxides from steam generators is designated as a precursor to NO_2, oxidant, and particulate.
September 23, 1979	Rule 424 - SO_2 control from Steam Generators becomes effective.
September 24, 1979	KCAPCD asks for clarification of the stationary source definition from CARB under 210.1 - New Source Review.
November 28, 1979	CARB public Hearing to review availability of NO_x offsets in Kern County, to determine a workable stationary source definition under 210.1 - New Source Review, and to review NO_x control technology for steam generators. Kern County separated into two categories, East and West, under new stationary source definition under 210.1 - New Source Review. No action taken on NO_x control.

February 22, 1980	EPA sends letter to companies questioning proposed particulate offset packages. EPA requests a demonstration that steam generator particulate emissions and fugitive dust from access roads are equivalent in air quality effects. Companies had proposed control of fugitive dust to offset generator particulate. This had been the acceptable EPA offset policy at the time of permit application submittal.
March 5, 1980	CARB amends KCAPCD Rule 210.1 - New Source Review to change the cut off date for existing sources from Dec. 28, 1976 to Sept. 12, 1979. CARB directs KCAPCD on particulate offsets. A size for size tradeoff of particles in the 3 micron and below range is required. CARB adopts Rule 425 - NO_x control from Steam Generators for KCAPCD. NO_x control is suggested by CARB because NO_x is a designated precursor to ozone and particulate. Rule 425 is a retrofit rule that forces technology and restricts the availability of future NO_x offsets. An exemption for small producers is adopted setting precedent for other mandated retrofit rules.
March 18, 1980 - April 7, 1980	Several producers adopt a plan for an elaborate NO_x monitoring network, and air quality modeling program for Kern County. This program is required as a permit condition by CARB and KCAPCD to evaluate NO_2 concentrations, and warn industry of possible NO_2 violations.
May 6, 1980	Industry begins extensive test program to evaluate generator particulate emissions and fugitive road dust emissions. Some NO_x control technology will be evaluated in this program. Several companies are independently testing various NO_x control technologies in addition to above program.
June 23, 1980	CARB proposes to modify Rule 424 - SO_2 control for Steam Generators. The proposed rule change will restrict offset availability from present rule requirements, and exempt small producers from Rule 424.

Mr. **Waxman**. Thank you, Dr. Scott, for an update on the situation in Kern County.

On March 6, the California Air Resources Board adopted revisions to its new source review rule which change the base date for computing offsets from December 28, 1976, to September 12, 1979. Doesn't this mean, in effect, that the amount of NO_x offsets available to industry wishing to build new steam generators will significantly increase?

Mr. **Braden**. Let me see if I can answer that, Mr. Chairman.

There was a change on March 6 to the new source review rule in Kern County. I think you are referencing in specific the question of NO_x offsets. In that area it was given some additional emissions that companies could use for offsets.

However, you should note that another rule was passed which was called rule 245 in Kern County, which required NO_x reductions on existing equipment. This reduced the availability once the rule was passed for producers to find sufficient offsets to increase production. This is only one issue because you still have to deal with other pollutants of SO_x, hydrocarbons and particulate matter.

Mr. **Waxman**. The construction ban applies only to permits filed after June 30, 1979. You have received 38 permits authorizing Union Oil to proceed if you can secure the necessary offsets. The Kern County Air Pollution Control District issued permits for steam generators in September 1978. How much total production is covered by these permits?

Dr. **Scott**. The 38 have not issued. They are out for public notice, and they are pseudo permits in the sense that one of the permits conditions requires an adequate offset package. We have known of this for a long time and have sent formal letters requesting purchase of offsets from other companies, and the responses so far have been negative. We have had no informal indications of any success.

Mr. **Waxman**. Consultants to the oil industry have predicted that increases in NO_x emissions from new steam generators, which now have authority to construct but no permit to operate, will not cause a violation of air quality standards. Isn't it true that if this prediction is correct, no NO_x retrofit controls on these generators will be required?

Mr. **Braden**. Would you repeat that question? I don't think I understand it.

Mr. **Waxman**. The consultants have predicted that increases in NO_x emissions from new steam generators which now have authority to construct but no permit to operate, will not cause a violation of air quality standards. Thus, isn't it true if this prediction is correct, no NO_x retrofit controls on these generators will be required?

Mr. **Braden**. That is not quite true. The permits that were issued back in September of 1979 had conditions on them that if we ever reached a certain proportion of the NO_x ambient air quality standards, the generators would be shut down during these episode periods. However, when you try to get a new authority to construct, you must still offset NO_x emissions, because it is considered a precursor to the oxidant situation as well as the total suspended particulate matter. I hope that answered the question.

Mr. **Waxman**. California's rules for existing sources link controls to ambient standards requiring a modest reduction of 25 percent by 1982 unless air quality standards for NO_x are about to be violated. Is that correct?

Dr. **Scott**. That is correct.

Mr. **Waxman**. Is it your opinion that the recent actions by the California Air Resources Board has not brightened the outlook for the majority of the companies seeking to build new steam generators?

Dr. **Scott**. Our situation is more confused and gloomy than it was. We thought we were going to get the 38 permits. Now in light of our inability to obtain offsets, we have no optimism we will be able to obtain those.

Mr. **Waxman**. Mr. Carpenter, I have some questions for you. Your testimony suggests the States should be given the discretion to implement the bubble without going through the revision process. Do you believe that any checks are necessary to assure attainment of ambient standards?

Mr. **Carpenter**. We certainly do. What CMA is proposing is that the States go through a onetime SIP revision giving them an authority to manage the program just as new source permitting. EPA has always had the ability to step in in their oversight of State actions and rescind that authority. We think the record of emissions reductions and things that have been accomplished by the States to date illustrates their ability to effectively manage that program.

Mr. **Waxman**. You have mentioned that the SIP revision process is complicated and time consuming for State and local agencies. Can industry remove some of this time and complexity by preparing virtually complete bubble applications for State approval?

Mr **Carpenter**. The EPA bubble policy requires that the industry applicants do most of the work. That is only a small part. Certainly if we come in with better applications, it is going to be easier, but I think if you talk to anybody from a State agency that has applied for SIP's, you would soon learn some of theirs have taken several years to get through, and some of them have been even lost in the process; so I have heard from some States. So I think we are talking a typical time being 12 months and even under the most expeditious situations of getting it through in 6 months.

Mr. **Waxman**. Your additional comments attached to your written statement suggest that EPA should not deny credit for trades between two pollutants within the same criteria. Does it make sense to increase known cancer-causing pollutants at the expense of reducing a less harmful agent within the same criteria?

Mr. **Carpenter**. That is not CMA's interest. Our interest here was, we think EPA's final statement was correct where they separately isolated section 112 pollutants out and in its final policy they have allowed tradeoff of nonhazardous hydrocarbon emissions. That is all we ask for.

I would also like to submit for the record a February 6 letter from CMA's counsel to Mr. Drayton, summarizing our problems with the present policy. The statement in the attachment to my testimony was our comment on the original proposal over a year ago.

Mr. **Waxman**. We would be pleased to receive that letter, and, without objection, it will be made a part of the record.

[The letter referred to follows:]

COVINGTON & BURLING
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February 6, 1980

William Drayton, Jr.,
Assistant Administrator
for Planning and Management
United States Environmental
Protection Agency
401 M. Street, S.W.
Washington, D.C. 20460

Dear Mr. Drayton:

On behalf of the Chemical Manufacturers Association ("CMA", formerly the Manufacturing Chemists Association), a nonprofit trade association whose 189 member companies represent more than 90 percent of the domestic capacity for producing basic industrial chemicals, we are responding to your letter of December 3, 1979 regarding EPA's final policy statement on the bubble concept.

CMA has consistently supported and urged EPA to adopt the bubble concept as a rational, effocient, and cost-effective means of maintaining and enhancing air quality. (See, e.g., CMA's comments of February 15, 1979 on EPA's Offset Ruling; CMA's comments of March 19, 1979 on EPA's proposed bubble policy). As you point out in your letter, the bubble policy "gives business . . .for the first time . . . a positive incentive to find more efficient or less costly pollution controls." We are therefore strongly supportive of EPA's decision to encourage use of the bubble policy, and to work with industry in implementing it successfully.

We were pleased to note that in promulgating its final bubble policy, EPA has adopted several of the suggestions made by CMA in its March 19 comments. In particular, we believe that the extension of the bubble to more than one plant, the recognition of tradeability of nonhazardous pollutants within a pollutant category (i.e. hydrocarbons), and the authorization of compliance date extensions are all improvements that will help industry to realize the anticipated economic benefits of the bubble.

CMA remains concerned, however, that in EPA's final bubble policy it has retained several unnecessary and unwarranted restrictions that will, by greatly increasing costs and delays, severely limit its usefulness and discourage its implementation. Four of CMA's primary concerns are outlined below.

CMA's first, and greatest concern, is the requirement that a SIP revision be obtained every time the bubble is to be used. The SIP revision process -- which includes the requirement of a public hearing -- is long and complex, and often drags on for months if not years. We fail to see that any useful purpose is served by forcing a source to undergo such a costly and time-consuming process when, by definition, emissions will not increase. Nor do we believe that EPA should intrude itself into the states' decisions concerning use of the bubble. Once EPA has approved a state SIP delegating authority to implement the bubble to the states, it should permit the bubble policy to be administered by the states, so long as the states continue to provide for reasonable further progress toward attainment.

Second, if EPA in fact wishes the state to move expeditiously toward attainment, it should not limit use of the bubble to existing facilities "in areas where states have successfully demonstrated that they can meet air quality standards by the statutory deadlines." EPA seems to assume that use of the bubble in other areas will degrade air quality or prevent progress toward attainment. That assumption is incorrect, inconsistent with the whole theory and purpose of the bubble, and should not prevent use of cost-effective controls in areas where such controls are particularly needed. Similarly we see no legitimate reason to limit use of the bubble to individual CTG categories merely because a SIP will demonstrate attainment by 1987 rather than 1982. At the rate EPA is progressing with SIP approvals, many plans will not even be approved until the eve of the 1982 attainment date.

Third, it is unreasonable for EPA to prohibit a source from fully utilizing its SIP-allowable emissions in implementing the bubble when its actual emissions are lower than its allowable emissions. Such a restriction takes valuable emission rights away from a source merely because it has not been operating at its permitted capacity.

Finally, we submit that putting the burden of proof -- and the cost -- of an advance determination of "equivalency" of environmental impact and enforceability wholly on the source is a substantial disincentive to using the bubble.

Despite the concerns that we have expressed, we believe the publication of this new EPA policy reflects a new willingness on the part of the Agency to accept constructive advice from industry on its regulations, particularly with regard to cost-effectiveness and technology innovation. CMA would be glad to meet with you to discuss these and other concerns, and methods of resolving them, in the near future. We would propose a meeting on February 21, 1980. We hope to hear from you at your earliest convenience as to whether you would be willing to meet with us on that or some other more convenient date to discuss these issues of importance to both industry and EPA.

Sincerely yours,

Theodore L. Garrett
Patricia A. Barald

Counsel for The Chemical
Manufacturers Association

PAB:daa

Mr. **Waxman**. Mr. Mullis, your testimony suggests that the bubble policy should be applied to new sources as well as existing sources. In the *Asarco* case, the court said under that approach the source could continue indefinitely without ever being required to update air pollution control systems to meet standards of performance for new facilities.

Why shouldn't air control equipment be required on a new facility?

Mr. **Mullis**. The question of time regarding conversion, and that is a major consideration, is not one of the issues that I addressed my testimony to.

We are asking for an existing facility to be able to convert to produce steam using less energy and generating less pollution.

If we were to convert that facility totally to a new facility, then I think it would be appropriate, then, to at least consider some form of pollution reduction.

But I think we are getting caught in a corner here, Mr. Chairman, where we can't do the things that the country needs to do in terms of conversion, for example, to coal, and afford to pay for the environmental costs.

I don't strongly advocate a continuing reduction in environmental pollutants as far as the air is concerned. I believe we have satisfactory air and in most of the areas like our facility would be located in, we meet all of the ambient air quality standards, so why continue wasting money and energy to get it even better?

So I would say in general, and to your question, I believe if the ambient air standards are met in an area, we should not be placing a strong emphasis on reducing the pollution there. We should be willing to accept a tradeoff where we maintain or slightly reduce the pollution level and reduce our energy consumption, or convert our energy from oil base to coal base, which I think is a critical——

Mr. **Waxman**. So you wouldn't have us within that concept to require pollution control equipment on a new facility?

Mr. **Mullis**. Not as long as there was adequate tradeoff in that there was no increase in pollutants there. If the new facility, for example, were to be larger and generate more pollutants, certainly we should not allow the pollutant level to increase, but if the standards are being met, I see no reason to increase the pollution control requirements. That is basically cost in energy. We are going to have to trade off somewhere here.

Mr. **Waxman**. Your testimony suggests that the practice of stringing together small boilers to avoid new source performance standards is widespread. What information do you have indicating that other companies have chosen the same option?

Mr. **Mullis**. I don't know of any industrial boilers produced by B. & W., Combustion Engineering, or Foster-Wheeler in the last 4 or 5 years that are in the 250 million to 600 million Btu-per-hour range, and that would suggest to me that everyone else has arrived at the same consideration, and that is that it is very expensive to put an SO_2 scrubber on the boiler in that range, and it is better to buy two or three smaller boilers and put them in the same stack.

Mr. **Waxman**. Will EPA's promulgation of new source performance standards for small boilers foreclose this loophole in the future?

Mr. **Mullis**. No. All they are doing is screwing down with the ratchet at the time, but they are not where it is economically attractive. I have attached an analysis we made on our boiler which shows that it is uneconomic to apply sulfurdioxide stack-scrubbing on boilers before the fuel input reaches around 1,600 million Btu's per hour. That is based on the cost of the boiler we installed and the cost estimate that was made for that same boiler to put on a very simple SO_2 scrubbing system, a throwaway system, a simple limestone throwaway, which generates other environmental problems in terms of disposal of the sludge.

The other systems are expensive, and they would drive that cost on up. As I recall now, EPA is trying to bring the limit down to 100 million Btu's, but I don't think that will fly economically. It will still be cheaper to put smaller boilers together.

Mr. **Waxman**. The new source performance standard for industrial boilers is not that limiting in terms of fuel use. Low sulfur coal without scrubbers or fuel oil will meet the standard. What efforts did Nipro make to secure a fuel supply which complied with the standard?

Mr. **Mullis**. We tried first to obtain a low sulfur fuel oil. We are located on the Savannah River, giving us access to coastal supply from the gulf coast and other areas, and mostly No. 6 oil is brought in through Savannah. Oil companies have no terminal provision in that area, nor do they have plans for low sulfur oil. They are unable to give us a commitment for low sulfur oil, being 1 percent or less required in this circumstance, and they had no future plans to do so.

If you look further at the cost of low sulfur oil, you are still better off building small boilers and not putting the pollution control equipment as long as you are under 250 million Btu's per hour. In our case we estimate operating the one boiler on 1 percent oil, which costs $4½ million a year. The boiler didn't cost but $2 million initially to purchase. So it didn't make much sense to spend that kind of money.

Mr. **Waxman**. How about using low sulfur coal?

Mr. **Mullis**. First of all, this boiler cannot be converted to burn coal. This is strictly an oil-fired boiler, has no ash removal, no fly ash removal capability; so it is technically impossible to burn coal there.

We did, however, then say, well, what we would like to do, then, is to replace all this boiler mess that we have with a cogenerating facility which would have been far more efficient in generating steam, and it would have been very efficient in generating electric power for our plants. In looking at that option, the availability of low sulfur coal in West Virginia, east Kentucky, western North Carolina, and that area, was so low it was considered improbable.

Mr. **Waxman**. Dr. Carter?

Mr. **Carter**. I beg your pardon on that. Coal is certainly available in eastern Kentucky. There are nearly 13 billion tons in coal reserves in eastern Kentucky, my friend, of which more than half are low in sulfur.

Mr. **Mullis**. That cannot be sold?

Mr. **Carter**. That isn't being sold because they don't have a market for it at the present time.

Mr. **Mullis**. We tried to get our supplies through Georgia Power Co.; there was a joint venture——

Mr. **Carter**. This is particularly true in Harlan County where there are reserves of more than 1.5 billion tons.

Mr. **Mullis**. They are blending in Birmingham.

Mr. **Carter**. They take higher sulfur coal and blend it with this low sulfur coal. Is that not correct?

Mr. **Mullis**. I can't speak for——

Mr. **Carter**. I believe I am correct in this matter.

Mr. **Mullis**. There is one other consideration, of course, which blending generates, and that is the fact that once a coal-fired boiler is designed for certain fusion ash temperature and other temperatures to prevent slagging, it is necessary to get a consistent fuel to burn in the boilers. A lot were designed to come out of specific mines and a lot were old boilers. I am sure there is also what you are talking about, and that is economic tradeoffs, and that is if high sulfur coal is less expensive, then it would make economic sense to blend off that with low sulfur coal.

Mr. **Carter**. On the other hand, high Btu, low sulfur coal is more expensive and usually, as you know, is used metallurgically, since it is really rather expensive to use it in boilers. I yield back the balance of my time, Mr. Chairman.

Mr. MULLIS. Metallurgical grade coal is very expensive and would be economically prohibitive in an industrial boiler.

Mr. WAXMAN. So it would be your claim that Nipro could not look at the option of moving to a low-sulfur coal use, converting to low-sulfur coal use because there was not low-sulfur coal in the area.

Mr. MULLIS. That is the information made available to us and Georgia Power is a large purchaser of coal. Their generating capability is something in the neighborhood of 85 percent coal base. So we have generally accepted their expertise in that area.

Mr. WAXMAN. Dr. Carter, why don't you proceed with your questions?

Mr. CARTER. Thank you, Mr. Chairman.

You mentioned Georgia Power. Actually it is Duke Power that is operating in Harlan County. As I said before, there are more than a billion tons of coal in the ground which we are having difficulty selling at the present time. I believe the going price of coal now is around $22 and $24 a ton; is that right?

Mr. MULLIS. Delivered to Augusta, Ga., the price is $44 a ton.

Mr. CARTER. Consumers can get all they want, I understand, and suppliers have not been able to sell it, because there have not been many conversions, and there hasn't been much demand for it. It is my understanding that the price for ordinary coal, which is used in boilers, is lower than that of metallurgical coal.

By the way, Mr. Scott, I notice that you said there were 5 billion to 10 billion barrels of oil under Kern County, Calif.

How much are you producing there per day and per year?

Dr. SCOTT. Exhibit 2, Dr. Carter, gives the figures on production rates both for heavy oil which is primarily by steam injection. The total county production for the latest month that we have of February this year was a little over 15 million barrels per month and the heavy oil production by steam injections about 9.2 million barrels.

Mr. CARTER. You have two types of oil, heavy——

Dr. SCOTT. One is so heavy, it has to have steam injection. There are other pools that are less heavy that can be pumped.

Mr. CARTER. What do you get for a barrel of this oil?

Mr. BRADEN. It averages approximately $26 to $27 a barrel of this type.

Mr. CARTER. What legislative action would help you produce more oil without causing environmental damage?

Dr. SCOTT. I don't think, Dr. Carter, that the environment is going to get worse if we produce, because with the combination of the very stringent controls now being required upon new facilities, and the continuing retrofit controls on existing facilities, I believe you will see that we can demonstrate from studies of contractors that the air quality will not get worse and may actually get better.

What needs to be done is what I tried to point out. We have to find some way to cope with this shortage of offsets. Second, we have to find some way to get a straight story from the agencies on what we can do to get the permits. We have three agencies we are dealing with, giving us three different stories, and that is very confusing.

Mr. CARTER. I am sure it is.

Dr. SCOTT. Also, we have to understand the significance of this construction ban. As we read the act, the probability of that construction ban being lifted is not optimistic. We don't really see how that is going to get lifted in the immediate future, and we have to have some straight answer on what that means to us—is it going to stay in place or be lifted? We don't know.

Mr. CARTER. Thank you.

I noticed you mentioned fluidized bed combustion, Mr. Marx. Do you think this process presents a feasible method of using fuel without polluting the air?

Mr. MARX. Yes, I do. Of course, it will pollute the air literally, but I think it is a viable alternative to more conventional systems. It offers real advantages from an environmental point of view, with the boiler operation in two of the three pollutants, SO_2 and NO_x. The fortunate thing about fluidized bed combustion is that inherent in the system are low NO_x production because temperatures in the furnace are low; therefore, little NO_x is produced, and, of course, with the addition of limestone, you can handle the sulfur oxides.

So you are left with the problem, then, of particulates, but generally the cost of removal of particulates in a fluidized bed is competitive with the equivalent control cost for conventional systems.

So I think it is safe to say that many people in the industry are very interested in fluidized beds and think it is a viable way of burning coal.

Mr. CARTER. They are using it more. It is still in its early stages?

Mr. MARX. It is still in the demonstration stage.

Mr. CARTER. The problem would be to remove the particulates. You are handling the SO_2 and the NO_x with the fluidized bed, formed by limestone mixed with coal, but it is still necessary to remove the particulates. Do you use electrostatic precipitators for that?

Mr. MARX. Or fabric filters. You use the same systems that you use with other systems of burning coal, so that is not a particular problem with fluidized bedding.

Mr. CARTER. Are many of the plants to which you sell your boilers converting to coal?

Mr. MARX. Let me put it this way: Many of our large members have plans to convert to coal. In fact, I would think most of them probably do, conversion meaning either going back to existing units where it is economically feasible to restore coal or by replacement of existing units with new units.

Mr. CARTER. What could we do to make it more economically feasible to convert to coal wherever it is possible to do so without causing environmental harm?

Mr. MARX. Well, much of the answer, I believe, lies in the new source performance standards program for industrial boilers, which is presently being developed by EPA. For smaller industrial boilers, that is, boilers with inputs below 250 million Btu, I believe what will help foster the increased use of coal will be for EPA to adopt performance rather than hardware standards, so that a user looking at coal can design the entire system that best suits his needs, and this, I think, will be a tremendous boost to industrial coal utilization.

Whether some further financial incentives for the smaller boilers are indicated at this point is unclear. With the way that the price of oil is being ratcheted upward, the size boiler at which coal becomes competitive, of course, is decreasing. Just how rapid that process will continue is a little hard to say.

But it is economic now to put in a coal-fired unit of a much smaller size in most instances than it was several years ago due, of course, to increased fuel oil prices.

Mr. CARTER. Yes, sir.

Mr. Carpenter, have you done much conversion from oil to coal in your company?

Mr. CARPENTER. We have not converted any recently. However, we are looking very carefully at every one of our installations for conversion to alternate fuels, whether that be coal or waste fuel——

Mr. CARTER. Recently? What do you mean by recently?

Mr. CARPENTER. Well, within the last 3 years. At one of our new facilities we have constructed a boiler that uses waste products off of process. We are looking at that at every project.

Mr. CARTER. That is one plus for you.

Have you considered, or do you plan, to use coal in place of oil or gas in the future?

Mr. CARPENTER. We look at that case by case with every project for the economics that are involved there.

Mr. CARTER. And the economics are often not favorable for conversion; is that correct?

Mr. CARPENTER. I am sorry, sir.

Mr. CARTER. Coal conversion is not economically feasible at this time, because of the high cost of coal scrubbers or fluidized bed combustion; is that correct?

Mr. CARPENTER. That is correct.

Mr. CARTER. This will be the case some time, I assure you. I would like to see fluidized bed combustion put in operation if it is at all possible. And even using oil as you do, or gas and waste fuel to generate stream, you have difficulty in meeting the standards. Is that correct?

Mr. CARPENTER. We have no problems with any of our existing boilers right now.

Mr. CARTER. Great. That is fine. But you do find it expensive; is that correct?

Mr. CARPENTER. I don't think there are any we have now that are inordinately expensive. But we have not been forced to scrubbing on a coal-fired boiler as yet, either.

Mr. CARTER. How do you manage to meet environmental standards without using scrubbers on a coal-fired boiler? Do you use low sulfur coal?

Mr. CARPENTER. Yes, all of our coal-fired installations are low sulfur.

Mr. CARTER. Where do you get the coal?

Mr. CARPENTER. I can't answer that. I am not an energy expert; I am sorry.

Mr. CARTER. Thank you.

You seem to be pretty knowledgeable about coal and its uses. Are you converting to coal in your area?

Mr. **Mullis**. No, sir. In our earlier exchange I would like to point out I am not qualified to discuss coal beyond the fact we are an explosive supplier to the coal industry and deal with a number of the coal companies, and all of the information we utilize, which I think was the best information available in our area, was from Georgia Power.

This was a joint-venture project with them, and they had every reason in the world to want to succeed. We are not converting to coal. As I said in my statement, we are not doing it for the simple reason that the environmental costs have made the project unattractive, and I think the economics are pretty straightforward.

Mr. **Carter**. How much would it increase your costs if you converted to coal?

Mr. **Mullis**. Let's talk about two costs. One is the capital cost, and on the project we talked about, without the environmental quality equipment, it was about $99 million, give or take $1 million; it was $135 million with the environmental control equipment.

If you talk about operating costs, our operating cost——

Mr. **Carter**. The added cost produced by the regulations of EPA and other regularly agencies.

Mr. **Mullis**. Well, then, if we are talking about the operating cost, the increase there?

Mr. **Carter**. Yes, you are referring to the increased cost, which of course, the electric utility would have to pass on to the consumer.

Mr. **Mullis**. In our case the same thing would apply. Any increased cost we have would be reflected——

Mr. **Carter**. My figures show the added cost to consumers of a utility's compliance with regulations would be about 40 percent.

Mr. **Mullis**. Well, if you are talking about our facility and not the electric utility, a considerable amount of the cost is defrayed by the fact we are generating power and utilizing it locally, whereas the utility has a considerable greater cost in generating the power to a remote location and transmitting. In our area it appeared in the neighborhood of 22 to 25 percent additional cost.

Mr. **Carter**. So it is more feasible?

Mr. **Mullis**. It is more feasible for us but economically unattractive.

Mr. **Waxman**. Thank you, Dr. Carter.

Mr. Satterfield?

Mr. **Satterfield**. Thank you, Mr. Chairman. I think the statements we have heard this morning have been most enlightening. I would just like to state one thing, and I would like to ask a question of Mr. Marx or Mr. Carpenter first.

Each of you said there are plans to convert to coal or at least to have a backup plan, I assume in the event you need it, is that what you are saying? Are these plans actual plans, or are they plans in reserve in the event the fuel situation now existing worsens and demands conversion, or because of the possibility of orders from DOE that you must do it?

Mr. **Marx**. You recognize that I have to speak somewhat second hand, speaking on behalf of an association. I am talking about information, though, I have gotten from some of my members, and

I would say that in a majority of instances their plans to go to coal have little to do with the Fuel Use Act.

Mr. **Satterfield**. Nevertheless, isn't the threat always there that DOE will order a conversion at any time they see fit?

Mr. **Marx**. That is correct.

Mr. **Satterfield**. I am well aware of what the Fuel Use Act does. I think it recognizes a deficiency that this committee failed to take care of when we handled the Clean Air Act in the last Congress.

You have a situation where one agency of the Federal Government can order something, which the other can prohibit, and there is no judge to make the ultimate decision. I don't think the Fuel Use Act is the right way to go about it, but I think it recognized that situation.

I have a feeling, and what I am really asking, is whether the plans to convert to coal are driven by economic considerations, or are they driven more by considerations of the ultimate necessity of being forced to do so?

Mr. **Marx**. Economics.

Mr. **Satterfield**. In that connection, when companies don't switch at this moment, would the economic consideration against conversion outweigh the problems that would be confronted through the EPA and the delays involved? Which would carry the most weight today? Still economics?

Mr. **Marx**. That is awful hard to say. I think what is happening, if I may speak now in the boiler marketplace, is that because of the uncertainties of how the Fuel Use Act is going to impact, and what the ultimate new set of new source performance standards for the industrial boilers will be, that people simply are stalling, and I think that is clearly reflected in the statistics of the boiler manufacturers, where the orders so far this year are down almost like two-thirds from a normal ordering year. So equipment simply, at the moment at least, is not being replaced.

Mr. **Satterfield**. In other words, what you are saying is that it is an economic question, but it is being compounded dramatically by EPA constraints?

Mr. **Marx**. Yes.

Mr. **Satterfield**. Mr. Mullis, I was interested in your statement about what you tried to do to convert, and apparently the EPA, or the Clean Air Act, is the thing that is really deterring you from moving to your cogeneration alternative?

Mr. **Mullis**. It is really the straw that breaks the camel's back. A 7-percent after-tax project is not a very attractive project in the chemical industry. There are few people in this room that want a 7-percent return. By the time we add another 35-percent capital to that project, it drops the return down to 3 percent, and that is unacceptable.

Mr. **Satterfield**. I am sure it is unacceptable from the corporate standpoint. The thing that bothers me, also, and this is the bind we seem to be in, is that if you were to go forward, or if you were ordered by DOE to convert, the increased cost is going to be passed on to people who purchase your product, down to the consumer, and here we are in the area of inflation again.

Mr. **Mullis**. That is correct. If DOE orders me to do it, and assume engineering-wise we can do that, and I think that is an optimistic scenario for the number of coal-fired boilers that would have to be built, but if they do, in our company it is straightforward, that $4 million or $5 million a year is going into nylon, and that is going into automobiles and housing.

Mr. SATTERFIELD. And we, the people, will pay for it?

Mr. MULLIS. The ultimate consumer will pay for all the costs.

Mr. SATTERFIELD. I have one other question. Recognizing the possibility that our oil supply could be curtailed almost immediately and dramatically in a given circumstance, which we hope never occurs, and assuming that DOE came to you today and said you convert. How long would it take you to do it?

Mr. MULLIS. Under an optimistic scenario, and we just finished a study for this project to build the plant because the facilities we have will not operate on coal—they are oil and gas-fired boilers and not designed to do that—it would take about 40 months.

Mr. SATTERFIELD. Just to develop and install the equipment?

Mr. MULLIS. Yes. That assumes I release the engineering company immediately—they have the plan in hand—go purchase the equipment. The long delivery item is the steam generator, and that is 30 months in fabrication, and then I have to put it in the field and then start it up.

Mr. SATTERFIELD. Would this be typical of other industries?

Mr. CARPENTER. Very much so. I think with a project the size he is talking, you are looking at a 30 to 36-month schedule; a 40-month schedule is very realistic.

Mr. SATTERFIELD. What you are saying, then, is if we have a reduction in imported oil from Saudi Arabia, for example, we won't be able to pick up the slack short of 40 months?

Mr. MARX. That 40 months, if I may add this, is the amount of time it would take, as Mr. Mullis said, from the time he gets moving. This is based on a normal commercial transaction. I don't know what additional time would be added with various Government regulations that would have to be met. But for a straight commercial relationship between a buyer and seller, with no Government interference, 40 months is not bad.

Mr. SATTERFIELD. If you don't have a shortage staring you in the face. What worries me about this, and what I think you are saying which should concern all of us, is that if all of a sudden we have an energy crunch, because we are not planning to utilize to the maximum extent possible domestic energy, we would be in a graver danger than just the shortage of oil.

I happen to believe this country should plan now and should be working toward production of as much total domestic energy of all types and let the marketplace determine which industries will use which type of energy, and thus remove reliance upon foreign imports. This is what I am really getting at.

It seems to me, from what you are telling us about the Clean Air Act and how the EPA regulations operate under it, that this is not even feasible. Assuming if we could move forward in other areas. Is that correct?

Mr. CARPENTER. Mr. Satterfield, I think we need to understand that the 40 months he spoke to can easily be doubled with trying to get the permit under the act, and that is one of the things that is really——

Mr. **Satterfield**. My question concerned just getting the equipment into place, assuming we had such an emergency, and that we waived the permits. This is a minimum even if you waive the Clean Air Act. It seems to me we should be moving forward now to try to develop conversions to the maximum extent possible.

If I understand what you have said this morning, and if I may put it this way, and ask you if it is correct, what all of you are advocating is not to raise the ambient air standards, but for greater flexibility in implementation plans to meet those standards so that each area can adapt according to its needs and its capabilities, without exceeding the ambient air standards. Is that essentially what you are suggesting?

Mr. **Mullis**. It summarizes my testimony certainly.

Dr. **Scott**. It is not true in those areas of the country that already exceed the standards. There we have a much more difficult issue. We have the construction ban superimposed on the need for progress, plus we have to have offsets, and they apparently don't exist.

Mr. **Satterfield**. I am aware of that, and I am aware that EPA is requiring under the act, that in nonattainment areas the State implementation plan has to contain certain things, and there is no latitude left to the State to attain the requirements in 1986 or 1987.

Would you feel in your circumstances that greater latitude is necessary to come into conformance by the target date?

Dr. **Scott**. Something has to be done about places like Los Angeles, where all the agencies agree that the standards are not going to be attained, and yet we are looking at deadlines and the sanctions and the ban.

Mr. **Satterfield**. I have one other question, Mr. Chairman. I notice with great interest Dr. Scott, exhibit No. 2, to your presentation—I think that is the one dealing with production of heavy oil and total oil in your area—could you estimate how much oil production from Kern County is being lost due to regulatory delays? Is that estimable?

Dr. **Scott**. I think the first cut at that is 135,000 barrels a day, which are just these first two increments of production, and those are just the first two increments. These will be followed by many more increments of production because it takes a lot of oil to produce——

Mr. **Satterfield**. That would be in addition to what we see in the exhibit?

Dr. **Scott**. Of greater number; that is correct.

Mr. **Braden**. If I may, Mr. Satterfield, to add to that, if you recall last year when we testified, the DOE prepared independent numbers on that. They estimated increments of some 500,000 barrels per day could be realized in Kern County without restrictions.

Mr. **Satterfield**. Five hundred thousand barrels a day.

Thank you, Mr. Chairman.

Mr. **Waxman**. Mr. Broyhill?

Mr. **Broyhill**. Thank you.

Mr. Carpenter, as I understand what you are telling the committee, that there are significant difficulties with this bubble theory or the bubble rule, not only that go to getting permits, but other problems, too. For example, many plants probably do not have the capability to measure or to demonstrate the reductions in emissions from other sources so that they can add to the present facility. Is that a problem, also, with the actual measurement of these emissions?

Mr. CARPENTER. I think the analysis of the bubble application is certainly going to be very expensive, and what is required for an SIP revision in many instances can easily cost upwards of $100,000 to hire the consultants to do the modeling and other things to make that application, so in a case where we are dealing with a project or savings that may only be on the order of $50,000 to $150,000, you may not want to go ahead with that, due to the risk involved and the cost of going through that process.

Mr. BROYHILL. What has been the relative success in getting acceptance of these applications for your association members? Have you had a pattern where some have gotten the States to accept the changes to the State implementation plan, and others have not, or has there been general acceptance of the figures and the data that you presented?

Mr. CARPENTER. There have been no bubble applications that have been approved as of this time. I understand, speaking to some people within the agency last week, that they feel that a realistic number of those who have been submitted at the State and local levels and everything are probably in the neighborhood of 50, but we have not had any applied for——

Mr. BROYHILL. So none have been accepted that have been applied for? Are you advocating that you apply the bubble concept to new sources?

Mr. CARPENTER. Very much so, to get away from some of the problems that have been created in *Alabama Power*. As I mentioned earlier, we are looking at a permitting procedure there exclusive of the control cost, a permitting procedure that in many instances can be more than the cost of the capital project.

Mr. BROYHILL. I am not sure I quite understand your testimony. You are saying that there is difficulty with applying the bubble concept to existing sources, and that you are not getting any acceptance of applications, and yet you want that applied to a new source? Are you saying that you are advocating the continuation of this bubble concept and you want that put into law?

Mr. CARPENTER. Very much so. CMA has been very active over the past couple years in working on the bubble policy EPA announced last December, and also in litigating to secure the right to use the bubble under the *Alabama Power* decision, so we could use it in the permitting of new sources.

Our problem is that when we have gotten it, it has contained so many restrictions, it is hard to use in most of the applications.

Mr. BROYHILL. Well, I think perhaps we had better start getting a little more specific in how you would change the law in order to permit it. You would permit it on a case-by-case basis?

Mr. CARPENTER. The law under the *Alabama Power* decision allowed the bubble and said it was inherent within the language already existent in the statute, and those regulations are under development by the agency, and they are due out any time, so Mr. Hawkins might be better able to speak to the status of those.

Mr. **Broyhill**. That won't apply, of course, to new sources; that will apply only to——

Mr. **Carpenter**. The regulations EPA has under development are to implement the *Alabama Power* decision, which did allow the bubble——

Mr. **Broyhill**. But the problem, of course, is in implementing that. In other words, if I understood *Alabama Power*, it said that the bubble concept would be permitted with respect to existing sources, but what it makes you do is go through these very difficult requirements to get approval.

Mr. **Carpenter**. No, I am sorry if my testimony has been confusing. As I said, there were actually three kinds of bubbles, and the one EPA has put the constraints on that makes it very hard for us to use is the existing source bubble where retrofit controls are required as part of an SIP, but no SIP requirement exists within the *Alabama Power* court decision, so we do not expect it will require an SIP to use every time there.

So it is actually two cases. The first one is the requirement to put new controls on an old plant, and the second instance is to use to speed up the permitting process so we can get on with construction of new facilities or modernized facilities.

Mr. **Broyhill**. Isn't a time coming when the offsets are going to be hard to find?

Mr. **Carpenter**. That is very true, and I think Mr. Scott has already found that to be true.

Mr. **Broyhill**. I think Mr. Scott testified to that effect. Of course, I have driven through Kern County, and it is more of an agriculture area. It would be very difficult to find offsets there.

Dr. **Scott**. That is correct.

Mr. **Broyhill**. Mr. Marx, I am curious to know the status of the boiler market right now. Is it booming, are your members' business booming, and have they had very good business in the last few years?

Mr. **Marx**. Quite the opposite is the case. The level of the market for new boilers, and this has been generally true for the past 4 to 5 years, is down well below 50 percent of its normal rate, and, as a matter of fact, you have to go back to the 1930's, to find an equivalent level of boiler orders. It is very bad.

For example, in their best year, the manufacturers sold something in the area of 1,200 units. Last month, they sold 22 units. So you can see the annualized rate is running way, way below 50 percent.

Mr. **Broyhill**. Are you saying that the clean air requirements are the reason for that, or are there other factors?

Mr. **Marx**. No, there are a lot of factors. It would be very unfair to say that is the only factor. I think it is a contributing factor, but there are many other factors that are generating uncertainty, in addition to which I must say there is a positive aspect to this. Industry's energy conservation measures have been so effective over the past several years that many industries have, in fact, found that they have a greater steam capacity than they thought they had, and that sort of one-shot deal, if you will, certainly has been a contributing factor as well.

So there are a lot of things in the mix, but the uncertainties on both the fuel use and clean air side are significant.

Mr. **Broyhill.** Thank you, Mr. Chairman.

Mr. **Waxman.** Thank you, Mr. Broyhill.

Mr. Preyer?

Mr. **Preyer.** Thank you, Mr. Chairman. I just have one general question I would like to address to the panel.

Do you think that the problems which you have outlined here to us this morning can be changed by limited statutory changes in the Clean Air Act, such as overruling the court decision involving the bubble theory, resolving the turf problem, adjusting deadlines, or do you think that major changes in the overall structure of the Clean Air Act are required?

Mr. **Carpenter.** Mr. Preyer, I personally don't feel that a tweaking of adding some new tests and eliminating some turf issues is going to get around the problems where we are looking at almost statutorily-mandated 3-year delays. The 3-year process is outlined in the act for permitting. It does not come from just what EPA has asked for. I do not believe that the changes which have to be made would go against our goal for clean air, and I think the kind of alternatives that are being looked at will provide a clean air policy for this country, and I don't think we are going to propose anything that is going to go counter to the actual rules of the act.

Mr. **Mullis.** Mr. Preyer, I am probably more pessimistic. I guess I am more in the front line on this business. I have to build these things and run these plants. As I stated before, I believe that with the achievement of the ambient air standards we have, certainly in those areas where they have been achieved, I believe it is economically unwise for us to pursue a cleaner air policy than what we have already, and, therefore, I think some of the relatively minor changes that we are asking for, and that is a variance procedure, from the new source performance standards, and the ability to utilize the bubble theory on new source performance standards, would maintain an acceptable air quality which we have particularly in our area, without generating a considerable amount of additional cost.

So I am probably the most pessimistic of the panel about where we are going to go. I have to find the money for these things somewhere, and it is difficult to come by.

Mr. **Preyer.** Incidentally, I wasn't quite clear on your answer to Mr. Satterfield, in which you indicated it takes 40 months to convert a utility to coal, even if you waived all of the permits that are required under the Clean Air Act.

Mr. **Mullis.** Yes, sir, not to convert a utility. Let me refer to the industrial boilers we have in our plants, which are far smaller than the utility boiler. Those boilers were initially designed, the older ones, to burn natural gas only, and subsequently converted to oil as natural gas curtailments or boiler fuel began to impact on us. They have no provision for ash removal. They are an enclosed boiler with no ash hopper or anything of that nature, no provision to handle the enormous loads of fly ash you have when you are burning coal; so it would be technically impossible for us to convert those boilers economically.

It is possible that we could convert them, but the time would be as extensive as would be required to build a new boiler; so the most expeditious thing for us, from an engineering viewpoint, would be to purchase a new coal-fired boiler, and our analysis that we just made on that basis was that from the moment we let the contract with the engineering company to proceed with the detailed engineering design to the moment we could be generating steam would be at 40 months. Really, it is about 44, as I recall it.

I am sure there could be some compression if it was an emergency, but we are talking certainly a minimum of 36 and somewhere in the neighborhood of 40 months to build a coal-fired boiler, and if you take an existing oil and gas boiler, you have to basically do the same thing.

Mr. PREYER. That is very discouraging.

Mr. MULLIS. Yes, sir.

Mr. PREYER. Dr. Scott, do you want to comment?

Dr. SCOTT. On the basis question, yes, sir. Our perception of the flaws in the Clean Air Act is that we will not be able to fix them with some minor trimming. I think some fairly substantial changes are required, but I hasten to emphasize in our judgment those changes will not gut the act at all. In fact, we think, if anything, it will make it work more smoothly and the air quality benefits would be indistinguishable, maybe better. But some substantial work has to be done on it.

Mr. PREYER. Mr. Marx?

Mr. MARX. I would like to agree with Dr. Scott and Mr. Carpenter, and I would like to make this statement, that I think it is essential that we look at both the Fuel Use and the Clean Air Acts on this problem and determine where the two acts impact, and I think what the industrial community is looking for is the decision as to the priorities. I really do think it will do little good to examine the Clean Air Act without reference to the Fuel Use Act. You can't burn fuel without putting out pollutants.

Mr. PREYER. I thank you, gentlemen. I appreciate your testimony today.

Mr. WAXMAN. Thank you, Mr. Preyer.

Mr. Stockman?

Mr. STOCKMAN. Thank you, Mr. Chairman.

Mr. Mullis, I had a chance to read your testimony beforehand, and I was quite impressed with the basic argument and logic I think you said we are spending too much time regulating sources and not enough emphasis abating pollutants. What we have created is a proliferation of different types of emission limit depending on the source size or whether it is in an attainment or nonattainment area, you have a medieval theologian's delight with all the acronyms created, such as LAER, RACT, GEP, BACT, and SIP, and you could go down the line.

Essentially what you are saying is that we need to revise this act to do two things: One, come up with a solid uniform ambient standard that protects public health or welfare aspects, and then, second, have some kind of uniform emissions limit regardless of the particular nature or categorization of sources. If this proliferation continues, we are going to have the standards or acronym or control requirement for every conceivable type and variation of source that there is, and the whole system is going to become mind boggeling and impose bureaucracy, delay, and regulation. Would that be a fair reading of your testimony?

Mr. MULLIS. I don't know what a Middle Ages theologian would do, but it is employing a large number of attorneys now.

Mr. STOCKMAN. That is the modern functional equivalent.

Mr. MULLIS. Let me just say from our plant's viewpoint, to give you an idea of the type of regulation, we are a relatively small manufacturer with about 1,000 employees located in a small town in Georgia, and we have 147 air permits to operate that plant. Every stack, every emission point has to have a permit for it. And those regulations are changing almost daily. We have a staff of four chemists, eight technicians to do the monitoring for us, and we have a staff of almost four who do nothing but follow the regulations. Whether or not small changes can be made in the Clean Air Act that will alleviate that problem, I am not qualified to say. It certainly has become an extremely complex issue, and the complexity of it doesn't appear to me to improve the air standards any.

Mr. STOCKMAN. I guess the point I am getting at is that commonsense would tell me if you have a multiple category of sources that are regulated in different ways, then the ones that you heavily regulate, you are going to have fewer of, and the ones you lightly regulate, you are going to have more of. What I see happening in the industrial sector is that a lot of the older, dirtier facilities are being kept in place. The natural economic rate of replacement, or retrofit, or modernization, is being slowed down rather substantialy just because of the differential.

Mr. MULLIS. There is no question about that. Nobody can afford o give up an old boiler; right.

Mr. STOCKMAN. It is sort of a valuable capital asset in terms of he act. Is that what you are saying?

Mr. MULLIS. It is valuable in the sense of what the replacement cost of the new facility would be. Of course, it increases the amount of maintenance costs, and that is very detrimental. It is a higher cost operation facility but it is still a relatively valuable asset.

Mr. STOCKMAN. Therefore, if you are regulating against pollutants based on their age, size, and circumstances, we probably could get cleaner air with less cost and less regulatory complication.

Mr. MULLIS. There is no question in my mind if you mean by hat the implementation of some concept of a bubble theory or ontrol of pollutants in the atmosphere, we could get a lower cost olution to the problem and a lot more modernization of our faciliies.

Mr. STOCKMAN. Does anybody else have a comment on that?

Mr. MARX. I think it is illustrated, Mr. Stockman, by a case nvolving a large brewer who found it less expensive to buy an xisting brewery than to build a new one largely because the oilerhouse had received all its permits and he didn't have to go hrough that.

So it turned out to be less expensive to buy this older, existing acility from another company.

Mr. CARPENTER. Besides just the cost of control equipment, someimes something even greater as the cost of delay and missed market opportunities. In the chemical industry, which is characterized by a large number of small emission points, sometimes numbering in the hundreds in a single plantsite, those things are being changed constantly as new formulas are run or capacity increases market demand and what I take now the result of the *Alabama Power* case, I am throwing 3 years of delays on top of some very small changes, and there are costs associated with those in additional risk because you cannot foresee what future is in the market that far out and additional costs because of somebody somehow getting something quicker to the marketplace through another means.

There are very substantial costs beyond the costs of control equipment.

Mr. **Stockman**. Dr. Scott.

Dr. **Scott**. I would like to reinforce that. That cost of control is small in comparison with the cost of delay. The catch-22 built in on the act the requirement to show reasonable further progress toward attainment, which requires retrofitting, which chews up offsets, and yet the construction ban superimposed upon this if you don't show attainment. This presents an incredible challenge to planning for future projects as well as modifications to existing projects. Those are built-in delays.

Every day in our business that we delay means that we import more barrels of crude oil. The Nation can't stand that.

Mr. **Stockman**. The question I would like to ask is if you penalize pollutants equally rather than regulated sources differentially, a lot of old plants all of a sudden would find they would have to shut down. Do you think industry would be willing to go along with that? Do you think that towns facing shutdown of an old facility would be willing to live with that?

Dr. **Scott**. I think another way around that is to look in the tax laws in conjunction with the air laws and recognize if the current provisions for tax-free bond financing for pollution facilities were extended to facilities which don't pollute by their very nature, which means an upgrading of the facilities, I think we would see a rapid turnover of capital stock and at the same time more efficient facilities.

The Nation would clearly be benefitted from this both from the economic and world competitive position as well as air quality. I think this is a far more intelligent way to attack the problem than any kind of fee system which is just a penalty that the customer will ultimately pay.

Mr. **Stockman**. Would an acceleration of the preservation system help since it would be easier to recover the costs of old facilities thereby making it an easier problem for firms to replace?

Dr. **Scott**. I don't claim to be a tax expert but I would presume this would be advantageous as well. The bulk of the focus in the industrial community right now is on some way of extending the current tax incentives that apply to controls to facilities that don't pollute.

Mr. **Stockman**. Thank you, Mr. Chairman.

Mr. **Waxman**. Thank you, Mr. Stockman.

Mr. Maguire.

Mr. **Maguire**. Thank you, Mr. Chairman.

Mr. Mullis, I have found myself very interested in your testimony. I have been pouring over it here. I wanted to ask you a couple of questions about the graph that you show in appendix I and the statement which you make on page 3. The background, of course, is that you chose to use three boilers, each below 250 million Btu's per hour rather than build the more efficient one at 550.

Mr. MULLIS. That is correct.

Mr. MAGUIRE. And the 550 boiler would, of course, not have had scrubbers, right?

Mr. MULLIS. It would have been required.

Mr. MAGUIRE. I mean you would have wished to go without scrubbers and because you had to build it with scrubbers, under the law you chose to use the three smaller ones?

Mr. MULLIS. That is correct.

Mr. MAGUIRE. So as not to have to use scrubbers?

Mr. MULLIS. That is correct.

Mr. MAGUIRE. On page 3 you say that companies such as yours will and do choose to string together boilers below 250 million Btu's per hour heat input until the additional costs associated with the implementation of scrubbers and/or low sulphur fuel are less than the increased costs associated with additional boilers operating at lower efficiency.

This last is the phrase I want to explore with you.

Mr. MULLIS. Yes, sir.

Mr. MAGUIRE. Then in appendix I the graph shows the break point where it becomes less than, to use your words. I take it that 1.6 billion Btu's——

Mr. MULLIS. 1,600,000,000. That is correct; 1.6 billion Btu's per hour as opposed to the 250,000.

Mr. MAGUIRE. Right. Now, do I conclude then from the argument you have made here that you would feel that it made no sense for us to have the requirements for the use of scrubbers on boilers below that size?

Mr. MULLIS. Let's talk about two things. First is whether or not it is economicaly attractive to do that and the second is then whether or not it is in the national interest to do that.

What I am saying is the way the current regulations exist, if you look at the economical alternative, the most logical solution would be to require SO_2 scrubbing on boilers that exceeded 1.6 billion Btu's per hour. That would be the break-even.

The second question is a far greater question.

Mr. MAGUIRE. That is the one I am leading up to.

Mr. MULLIS. I have testified already that it is my position that we should not allow any of these projects to cause the ambient air quality standards to be violated in areas where they have already been achieved and that is the area in which I operate. I cannot speak for California where they have a different geographic and a different natural problem there as well.

Mr. MAGUIRE. So at some point you would factor in the national interest in some standard of clean air.

Mr. MULLIS. Yes. I believe they are a realistic, although at times questionable, goal for us to achieve.

Mr. MAGUIRE. Then, of course, we would have to talk about PSD areas and talk about areas where the ambient standards have not yet been achieved with respect to what you might feel was appropriate.

Mr. **Mullis.** I said I can't speak for those areas, unlike ours, because I don't have experience in the nonattainment areas.

Mr. **Maguire.** Do you have any feeling, though, as to where on this continuum you would have placed your cutoff point for the boiler capacity and the application of scrubber technology?

Mr. **Mullis.** What happens there, of course, is at any point the company is somewhere along—let's assume you have gone the small boiler route which is a typical route because plants expand in increments; you don't build a giant plant. Our plant has expanded three times in the last 12 years. If you are on that line, then each time you have to determine for yourself what is the most economically attractive move. That would depend on where you were on the line relative to the 1.6 billion Btu's. At some point you might say I need another 1.6 billion so I will scrap the old ones and build a new one.

On the other hand, if you had a lot of new boilers, then it might be economically attractive for you to continue beyond the 1.6 billion.

The option that is presented us, and particularly when the boiler is in the 250 to 750 range, it is a very clear-cut case. You cannot afford the scrubbing equipment compared to the alternative.

Mr. **Maguire.** Let's run the curve down the other way for a minute. If the law had required scrubbers with boilers, anything in excess—this may be ridiculous—of 100 million Btu's as opposed to 250, would that have changed the economics so that it might have made more sense for you to build the more efficient boiler at 550 with scrubbers?

Mr. **Mullis.** I don't think it would have made the impact there. It would have moved the economic breakeven point probably down to 1,000 but just looking at the line you could literally lower the line to whatever standard level you wanted. Obviously, if it were set at 10 million then somewhere up the range at 550 that would have been attractive.

If I followed the gist of your reasoning there we would have another problem. I think that the costs would prohibit generating steam in that fashion and people would have to find some other way.

Mr. **Maguire.** As a practical matter, the 150 million Btu boiler where you put two together is pretty much the smallest you can do sensibly.

Mr. **Mullis.** Somewhere in that range. There are a lot of package boilers that are in the 20 million Btu per hour fuel input. Those would not be used typically in a large chemical manufacturing plant but in a school or hospital.

Mr. **Maguire.** Clearly, though, you do agree that the whole enterprise we are engaged in here is something that is attempting to factor in whatever the national interest is in different levels of clean air and that that is an appropriate part of the discussion.

Mr. **Mullis.** Certainly.

Mr. **Maguire.** You would agree that was the case. In other words, we may not be able, if we are meeting other objectives, to give you that 16—that 1.6 billion break point which, other things being equal, economically would be suggested. You agree that is the case?

Mr. **Mullis**. Our country is not run on pure economics. That is the reason for Congress and I don't mean that facetiously.

Mr. **Maguire**. We want you to know we are very interested. It is just there are some other calculations also.

Mr. **Mullis**. I certainly agree economics are not the sole basis for passing regulations or legislation that may be in the public good. I think that goes without question. I think that is the purpose of the Congress to make that judgment.

Mr. **Maguire**. Thank you. Thank you, Mr. Chairman.

Mr. **Waxman**. Let me thank each of the members of this panel for your presentations this morning. I want to commend you for your remarks and your suggestions and we certainly want to work with you in looking at ways to change the act where appropriate.

We are going to break until 1:30 and then we will reconvene at that time.

[Whereupon, at 12:10 p.m., the subcommittee was recessed, to reconvene at 1:30 p.m., the same day.]

AFTER RECESS

The subcommittee reconvened at 1:30 p.m., Hon. Henry A. Waxman, chairman, presiding.

Mr. **Waxman**. The meeting will come to order.

I would like to now call forward a panel of three witnesses to testify and answer questions: John R. Quarles, Jr., chairman, National Environmental Development Association/Clean Air Act Project; Richard E. Ayres, senior staff attorney, Natural Resources Defense Council, and O. B. "Bill" Burns, Jr., chairman, air quality committee, American Paper Institute/National Forest Products Association environmental program.

Mr. Burns, why don't we start off with your testimony.

STATEMENTS OF O. B. BURNS, JR., CHAIRMAN, AIR QUALITY COMMITTEE, AMERICAN PAPER INSTITUTE/NATIONAL FOREST PRODUCTS ASSOCIATION; JOHN R. QUARLES, JR., CHAIRMAN, NATIONAL ENVIRONMENTAL DEVELOPMENT ASSOCIATION/CLEAN AIR ACT PROJECT: AND RICHARD E. AYRES, SENIOR STAFF COUNSEL, NATURAL RESOURCES DEFENSE COUNCIL

Mr. **Burns**. I am O. B. Burns, Jr., vice president for corporate environmental activities of Westvaco Corp. in New York City.

I am appearing today as chairman of the air quality committee of the American Paper Institute/National Forest Products Association (API/NFPA) environmental program.

The 200 member companies of API manufacture more than 90 percent of the Nation's production of pulp, paper, and paperboard. NFPA's federated association members and direct company members include more than 2,000 companies engaged in the manufacture of numerous solid wood products. API and NFPA member companies have a direct and vital interest in the implementation of the Federal Clean Air Act.

The purpose of our testimony today is to review the forest products industry experience with the Prevention of Significant Air

Quality Deterioration (PSD) provisions of the 1977 Clean Air Act Amendments and, based on these experiences, to discuss some of the problem areas encountered in obtaining PSD permits for new and modified sources and to offer some recommendations for future changes in the PSD program.

As you are aware, the 1977 Clean Air Act Amendments and subsequent implementing EPA regulations and court decisions significantly expanded the requirements for obtaining PSD permits for new and modified industrial sources.

The forest products industry experiences in obtaining PSD permits, which I will discuss in a minute, cover a period of about 2 years, starting on August 7, 1977, the date of passage of the 1977 Clean Air Act Amendments.

A general information questionnaire and case history description form were distributed in mid-1979 by the National Council of the Paper Industry for Air and Stream Improvement, the environmental technical studies arm of the forest products industry, to forest products industry companies that had recently obtained PSD permits.

Twelve responses were received, and the information contained in those responses has been summarized in NCASI's Special Report 80-05, copies of which have been distributed to you and your staffs.

Before discussing the findings of this report I would like to point out that the case histories summarized in the report deal only with situations where companies have actually applied for PSD permits to the appropriate permit-granting authority, either the EPA or State agency with PSD authority. Situations where companies decided against applying for PSD permits because of unacceptable costs or probable delays are not covered.

Now, on to the findings of the report. The 12 case histories revealed that there was a very wide range of experiences in obtaining PSD permits, which can be attributed to *(a)* the constantly changing permitting requirements in the 2-year period subsequent to the 1977 amendments, *(b)* policy and procedural differences among various EPA regional offices and State permitting agencies, and *(c)* to a much lesser extent, the diverse nature of forest products industry emission sources needing PSD permits.

Some of the problem areas encountered in the permitting procedure were the determination of best available control technology (BACT), lack of EPA-State coordination, definition of baseline concentrations, uncertainty over PSD increment consumption, and controversy over air quality modeling procedures.

Of these problems, the most frequently reported was the reviewing agency's determination of BACT which, you recall, must be done on a case-by-case basis for all regulated pollutants which will be emitted by the new source.

Once a PSD permit application was submitted to the appropriate permit-granting authority, the median elapsed agency review time was 8 months, but ranged from a minimum of 3 months to a maximum in excess of 17 months.

It is highly significant that ambient air quality monitoring was not required for the PSD applications in the majority of these cases which span the 1977-79 time frame.

However, the December 1979 Alabama Power court decision and the accompanying proposed PSD regulation revisions leave little doubt that ambient monitoring for one or more pollutants will be required in the future as part of each PSD application. The forest products industry expects that this monitoring requirement will become the most expensive and time-consuming part of obtaining a PSD permit in the future.

It should be pointed out that prudence requires an industrial source seek approval of its proposed ambient monitoring program and associated quality assurance program before any monitoring equipment is installed. This may consume a minimum of 2 to 3 months.

Considering that an ambient monitoring program takes 3 to 6 months to install and stabilize its operation after this approval, that a 1-year data collection period is necessary, and that data analysis and dispersion modeling require an additional 3 to 6 months, an ambient monitoring program will necessitate an additional 18 to 26 months period prior to submission of the PSD permit application.

Coupled with a median agency permit review time of 8 months, which surely will be even greater when ambient monitoring data are submitted, the total time required to obtain a PSD permit, which must be issued before any actual construction can begin, would be on the order of 2½ to 3 years or so.

The impact of a 3-year delay on detailed engineering, final design, and construction of a facility or modification, is very significant and may be cause for not even starting a particular project.

Another important conclusion can be drawn from the case histories. All of the companies involved in PSD permit procedure felt that the entire procedure yielded no net air quality benefits beyond those derived from already mandated emission controls for forest products industry sources.

That is, new source review provisions which call for emission controls equivalent to new source performance standards or BACT were entirely adequate to prevent significant deterioration of air quality.

In their opinion, ambient monitoring, modeling, and allowable increment PSD provisions did not serve a useful purpose—the same air pollution control equipment was installed regardless of the results of these additional expensive and time-consuming requirements.

In addition to the direct findings and information presented in the National Council report, API/NFPA would like to point out some additional aspects of the PSD program that we feel are important.

In this commentary we have combined the knowledge and experience the industry has accumulated over the past couple of years with the results of the National Council report.

First, the PSD program, as presently structured, really sets tertiary ambient air quality standards for sulfur dioxide and particulate matter through the increment system.

Frequently, attaining compliance with the available increments is even more difficult than meeting the primary or secondary ambient air quality standards that are based on health and welfare criteria.

We believe that the increments to be met under PSD have no real scientific basis and serve no purpose other than establishing a more difficult and expensive permitting procedure, with minimal air quality benefits.

Second, it is becoming more and more difficult for us to see where the PSD program is leading us. We certainly support the concept of having clean air and of maintaining air quality at levels commensurate with the benefits to health and welfare. We cannot, from our viewpoint, see how PSD in its present form is attaining this goal.

As we have noted, obtaining a PSD permit for our industry has become a critical element in our planning activities. Our analysis between 1977 and 1979 shows considerable time elapsing between permit application and receipt for a variety of reasons. No one has any experience with the new PSD program after Alabama Power, but we can, with some degree of certainty, predict that permitting time may be extended an additional 18 to 24 months before construction or modification of a source can commence.

We can also visualize the cost of permitting climbing beyond an already hefty amount. Unfortunately for all of us, industry, government, and environmentalists, though having a common goal of protection of ambient air quality, we cannot yet discern that the program is furthering this goal. It does build in added cost, bureaucracy, and delay.

It is our recommendation, therefore, that this subcommittee, the Environmental Protection Agency, and any others having sufficient interest, reexamine the program to determine finally if PSD is actually causing protection of ambient air quality or if the controls installed on new sources would have been installed in any event.

We further suggest that far too much emphasis has been placed on preconstruction monitoring and too much faith invested in the validity of atmospheric dispersion modeling predictions, integral parts of the present PSD program.

Since our industry's experience has shown that the monitoring and modeling exercises do not really change the emission control technology requirements, our final recommendation is that, for permitting of new and modified sources to insure protection of ambient air quality, new source performance standards (NSPS) are entirely adequate for the major forest products industry sources. Furthermore, for sources for which no NSPS exists, a case-by-case determination and installation of BACT is entirely appropriate.

We believe this final recommendation would accomplish the same end result of protection of ambient air quality without the superfluous burdens of a full-fledged PSD review.

We wish to thank you, Mr. Chairman, the subcommittee members, and others for your courtesy in allowing us to give you our viewpoints, particularly as the impacts of Alabama Power are realized.

We hope that we will be allowed to do so again in the future. We consider this matter of substantial importance to our industry and hope that our remarks will prove beneficial to you as you sort out this complicated subject.

Mr. WAXMAN. Thank you very much for your testimony.

Mr. Quarles.

STATEMENT OF R. JOHN QUARLES, JR.

Mr. QUARLES. Thank you, Mr. Chairman.

On behalf of myself and the members of NEDA/CAAP I would like to thank you for the opportunity to present testimony today. I have been asked to speak to issues affecting the PSD as it involves baseline determinations, modeling and increment consumption which also includes monitoring. I look forward to the chance to do this.

I know that you have all heard substantial criticism of the PSD program. In my belief, a large part of that criticism springs out of the conviction among those who have had to deal with it that the underlying mechanical components of the program, including those that you have asked me to speak to, present grave technical and administrative difficulties.

This is where the heart and core of the problems arise, and I see my goal today as to try to help you to understand why those problems are causing the difficulty to people in the field that they are.

I have submitted for the record a lengthy prepared testimony. [See p. 141.] It is too lengthy for me to read it in the time that is available from your viewpoint and mine. So what I would propose to do is submit it for the record and I will just quickly flip through the highlights for this initial presentation.

Let me begin, then, by talking about baseline which is where it all begins. The first point that must be understood about the establishment of a baseline for the PSD program is that we are not talking about a single number. Compliance with the air quality standards is calculated on the basis of the maximum concentrations as they will occur at hot spots which are identifiable points of maximum impact. The establishment of the baseline, therefore, has to start off by setting the starting date data for the original ambient air quality concentrations at all of these different points spread out on the map. In a major metropolitan area that is an enormous diversity of different impact points.

So I simply repeat we are not talking about a simple number or a single number.

In addition, to complicate this further, is the fact that you have one baseline for particulate matter and a different one for sulfur dioxides. Obviously you have one baseline for the annual average and you have a different baseline for the short-term standards.

In sulfur dioxides where you have a 24-hour and a 3-hour maximum, you have different baselines for that. So you have five sets of maps with numbers spread all over them, and that is the baseline for an area—not just one simple, single number.

How do we get this mass of numbers to put on the map? The background ambient data does not exist in most instances. Obviously, we have not been trying as a country to monitor air quality data at all the points of maximum impact wherever they might occur in the future where somebody might try to build a plant.

We have accumulated over the years a large amount of monitoring data. A lot of that data is unreliable. At the time it was collected there may have been inaccuracies in calibrating the monitoring instruments, maybe other technical deficiences that underline the data, but at any event it is data collected at the wrong place. Therefore, in order to establish the baseline some sort of hypothetical calculation must be made to extrapolate from the data collected at one point on air quality to what the air quality might have been at a different point.

Those extrapolations obviously are very difficult for the technical experts to make. You might think, well, the answer is then to go out and monitor and collect the data and we will know what the air quality was as we try to establish the baseline.

In that regard one of the commonly overlooked complexities of ambient air quality data to set a baseline is the dependence of air quality on the weather.

The actual air quality will vary enormously from day to day and from month to month and year to year and usually those variations are more dependent on differences in weather than they are in differences in emissions. So if you simply have a record of ambient air quality data accurately collected at an appropriately located monitoring station for an entire year, that still doesn't tell you what air quality was as a baseline until that data is correlated with meteorological data.

In the development of air quality data it is always necessary to make this correlation with the met data. Then we bring in not only all the inaccuracies and uncertainties of the air quality monitoring data but also the difficulties of obtaining adequate meteorological data. In that regard there are a great many additional difficulties.

Another important aspect of setting the baseline is what is the time, what is the moment in time, or the point in time at which the baseline is to be set? I think you are aware that EPA in its regulations started off by picking August 7, 1977, which was the date when the 1977 amendments were enacted. The courts in Alabama Power rejected that as the baseline date and said that instead the baseline date should be triggered in each separate area when the first application is submitted in that area.

Thus we will have a pattern of differing baseline dates in all the different PSD areas around the country.

The next question on this is what will be those areas, units of territory, for which these baselines will be set. How big will they be?

EPA has proposed a couple of alternatives and not yet resolved this, because they are going through the regulation development process, but the alternatives they have proposed might be on the one hand using the existing air quality control regions or alternatively using the areas designated under section 107 of the act, but in either case we are looking at areas that might be 200 miles from one side to the other.

The point there is that baseline is going to differ from one place in those areas to a different place. In fact, it is going to differ all over the lot within those 200-mile areas because air quality can differ from one block to the next, let alone from one spot in a State to a spot 200 miles away.

Then there is the obvious question of if the baseline date is set for 1979 in a particular area, and monitoring data is collected in the locality for the project that came in to trigger the establishment of that baseline date, that monitoring data will be relatively useless in helping to figure out what the baseline should be 100 miles away when a project comes in seeking to build there 3 years later.

This dependence on the whole system on these calculations brings us to the next area of discussion which is modeling. I would like to begin in regard to modeling by stating the obvious but important point that modeling is a computer or paper calculation designed to predict reality, not to measure it.

In other words, modeling is an element of hypothetical calculation. The success of that calculation depends directly upon the various assumptions which are used as the input to the computer processing.

The ultimate goal of the modeling is to attempt to determine the method of dispersion by which a given quantity of pollution will be dispersed throughout the ambient air in the surrounding area when released from a given point.

The basic model is set up to define the typical way in which the air pollutant concentrations will spread out, but all of the models have to be adjusted to correct for the fact that in any given locality reality will be different from the assumptions. It will be necessary to correct the model for local terrain features, such as rivers or hills or plains or whatever the situation might be.

If there are large buildings in the area, they create a downwash and it is necessary to put into the model a correction factor for the location of a nearby building and the downwash that will result from it.

It is necessary to correct the models for wind speed and wind direction. I understand that as one example if there is a mistake in the assumption of wind direction, as small as 2.5 degrees, that will cause a mistake in the output as to concentrations ranging perhaps from 5 percent to 40 percent.

A 2.5-degree error in wind direction is pretty small, especially when the Weather Bureau only records wind directions to the nearest 10 degrees; thus you quickly get errors built into the modeling results.

There is also the necessity to correct the modeling assumptions for the temperature of the air and the temperature of the stack gases. The models usually are simplistic and conservative. They are simplistic in they assume these factors will be uniform, whereas, in fact, all these factors, other than the terrain, wind direction, et cetera, are changing constantly and the models have no way to reflect those changes.

In short, there is enormous potential for disagreement among experts when you come to devising an appropriate model for a particular case.

I think that the general agreement among experts is that when all is said and done, the modeling results will have a range of accuracy that may run from minus 50 percent to plus 100 percent which is another way of saying, if you get half as close to the goal as you ought to be, that is about as good as the system can do.

In many cases people will say it is much farther off than that. The point of this is not to criticize modeling. It remains the best predictive tool we have, but the problem is that in PSD we have constructed a regulatory program that demands a level of accuracy which the state of the art cannot provide.

Let me move on to increment consumption. Obviously in attempting to calculate the extent to which an increment under PSD has been consumed, the first task is to identify the baseline date, the second task to establish the baseline and the third to determine the extent to which the available increment has been used up by changes since the starting date that have added to or perhaps subtracted from the levels of prevailing missions.

The principal point I want to make in regard to increment consumption is that this is accomplished through a series of hypothetical calculations. It is not accomplished through actual measurement and monitoring. The determination of increment in the system rests upon a complex system of modeling and bookkeeping.

You might say, well, they are all the same, but they are not the same because there are differences in the way the books are kept from the way reality occurs. The common theme that runs through many of these differences is that the consumption of the increment on the books occurs on the basis of the maximum allowable emissions of each source whereas in real life the consumption would occur on actual emissions.

There are big differences between maximum allowable and actual emissions.

For example, a facility which has authority to burn oil which may have fairly high sulfur oxide emissions in many cases may today be burning natural gas which will have virtually nil sulfur dioxide emissions so there you have a big gap. You may be familiar with the Houston study which indicates on this basis alone there is an enormous contrast between allowable increment and the existing air quality data.

Another example of the difference between actual emissions and allowable emissions occurs when any type of manufacturing facility is not operating at maximum capacity. The regulations, the State implementation plans and permits typically allow a facility to operate at its maximum designed capacity for 24 hours a day, 7 days a week, 365 days a year. Most of those plants may operate for one shift or two shifts, 5 to 6 days a week. The hours of operation differ enormously.

A consequence of the fact that the baseline is set up with the intent that it will reflect actual air quality at the time of the baseline date, when combined with the fact that the increment consumption occurs on the basis of maximum allowable emissions, can be that a sizable part of the increment is consumed in making the crosswalk from the baseline to the emission increment consumption.

More importantly though is the fact I mentioned in the beginning, simply that in dealing with increment consumption we are dealing with a fictional number. It is not a number that anyone can prove or disprove by going out and monitored the actual air. If there is a difference between the results that come in from somebody having gone out and monitoring the actual air on the one hand as contrasted to the modeling calculations on the other, the system relies on the latter and rejects the actual air quality data.

It may use the actual data to raise questions about the modeling and the hypothetical calculations and perhaps lead to corrections in those, but still the dependence rests on those hypothetical calculations.

This does not produce as serious a problem in the short run as it threatens to produce in the long run. In the short run it may be a relatively clean and simple determination and in fact usually on the basis of actual experience has been a relatively simple determination to go out and show that the increment will not be consumed by an individual source.

But as we buildup over a period of time, to having a large number of small sources, each having consumed a tiny fraction of the increment and the fraction of the increment differs on what point in space you are looking at and the way the wind blows in different directions at different times, the sets of calculations that will be called for toward the end of the system become quite overwhelming.

This is an example of a modeling run [indicating] and I can't explain much about it to you. I bring it simply to suggest to you the numbers that we are dealing with, the physical difficulty of running the system.

Moving on to monitoring, you are aware that section 165(e)(2) explicitly requires that after August 7, 1978, any applicant must submit "1 year's continuous air quality monitoring data." That is in quotes.

It must be assumed that Congress expected that this monitoring data was going to be used to determine whether the increment has been consumed. However it is not used in that way as I have already explained. EPA evidently concluded that the across-the-board imposition of the monitoring requirement was unwarranted because EPA regulations provided that this monitoring data should be submitted only in cases where there was a concern that the ambient air quality standards might be violated.

In the *Alabama Power* case the courts said you can't do that, Congress has mandated 1 year's monitoring data in every case, and so that requirement has been put back onto the process.

The monitoring requirements represent the single piece of the entire PSD regulatory program which costs the most and which takes the most time to carry out and which could do the least in the way of significant contribution to the regulatory process.

In that sense the monitoring requirements present one of the clearest needs for statutory modification.

There is a great deal more that I could cover, Mr. Chairman, in describing these technical and practical problems. Usually I think it is not necessary for a congressional committee to focus on the technical and administrative aspect of a Governmental program that is called for in PSD but in the case of PSD, the weakness of these mechanics are at the core of the weakness of the program. The program is teetering on the edge of administrative impossibility. At least in many of the cases where it is going to be applied it commands congressional attention.

It is our hope that NEDA/CAAP can participate in the reexamination of the PSD program in a way that will be widely regarded as constructive. I would like to make a couple of points in that regard.

First, NEDA/CAAP endorses the concept of BACT. Second, NEDA/CAAP accepts the requirement that every major facility should undergo a preconstruction review to assure compliance with BACT and other appropriate air quality requirements.

Third, NEDA/CAAP acknowledges the need to provide some form of protection beyond that of the ambient air quality, at least in regard to those areas where the scenic value of high visibility has special importance.

Fourth, NEDA/CAAP recognizes the political infeasibility of opening up the entire structure of the PSD area classification increment system and the rest to total overhaul.

So NEDA/CAAP is not expecting and will not attempt to go back to square one in the formulation of a regulatory process to protect against significant deterioration of air quality.

In ticking off these big ticket items which we do not intend to challenge, I think I have covered a lot of ground. If we drop one level below those big ticket items, however, we come to a large number of smaller ticket items which in their aggregate have tremendous importance to our Nation's economic vitality.

Yet, I believe that in many cases these elements do not have major importance to our Nation's air quality protection programs. That presents an opportunity for improvement of the program in the public interest.

We hope that you will come to grips with these problems. We know it is too late in this congressional session for you to do much about it but we are asking and we hope that you will make it a point in your mind now to set this item high on the agenda when Congress comes back into session after the first of the year and give these problems the attention that they deserve.

[Testimony resumes on p. 161.]

[Mr. Quarles prepared statement follows:]

STATEMENT OF JOHN QUARLES, CHAIRMAN OF NATIONAL ENVIRONMENTAL DEVELOPMENT ASSOCIATION CLEAN AIR ACT PROJECT BEFORE HEARING OF THE SUBCOMMITTEE ON HEALTH AND THE ENVIRONMENT OF THE HOUSE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE

JUNE 16, 1980

Mr. Chairman and Members of the Committee:

I am grateful for the opportunity to appear before your Committee today to present testimony on behalf of the National Environmental Development Association's Clean Air Act Project. Known as NEDA-CAAP, this Project represents a joint effort by a number of industry and labor groups to explore opportunities for improvement of the Clean Air Act, particularly by reducing its uncertainties and obstacles which may restrict beneficial industrial growth.

A symptom of the effects and magnitude of this problem is the proposed Energy Mobilization Board. The President has proposed and the Congress has approved the creation of a new government entity to speed the permitting of certain critical energy facilities. This is a direct acknowledgment both by the Administration and by the Congress that serious problems exist in the requirements affecting the siting and construction of new energy -- and industrial -- facilities. Clean Air Act requirements contain many of the most critical elements affecting the siting of new plants. It is important that the Congress start now to review, statute by statute, these laws to weed out those requirements which needlessly encumber the siting of new facilities.

NEDA-CAAP welcomes the willingness of your Committee to explore troublesome areas within the Clean Air Act's regulatory framework. A willingness on your part to consider its deficiencies is indispensable to any hopes for improvement. At the same time, I wish to emphasize on behalf of NEDA-CAAP that we do not expect, or seek, fundamental or major changes to the overall structure of the Act. We believe that certain limited statutory changes in the Clean Air Act would remove many burdensome features of this regulatory framework without weakening its protection of public health and air quality.

This orientation of NEDA-CAAP exactly matches the request your Committee has made to us today to address questions arising under the PSD program concerning air quality baselines, increments, and modeling. These areas cover some of the most severe practical problems in administration of the Act. Indeed, they represent the soft underbelly of the PSD program. Moreover, since many weaknesses in these administrative mechanics result directly from detailed statutory provisions, they cannot be resolved without Congressional help.

While I will comply with your request to limit my comments today to those specific elements relating to PSD, however, I do not want to leave you with an impression that these are the only problem areas. They are not. A number of other critical Clean Air Act regulatory problems must be addressed by you and this Committee. NEDA-CAAP hopes you will soon open your discussion on these other, equally important issues.

Outline of PSD Requirements

I know that most members of this Committee are familiar with the general outline of the PSD program, but let me briefly review its principal features before discussing specific concerns. First, the PSD requirements apply only to new sources or expansions (modifications) of existing sources. Second, they apply only in areas of the country which are in compliance with one or more of the national ambient air quality standards. For those cases, PSD imposes a permanent ceiling on the overall increase in pollutant concentrations which is considerably more stringent than the ambient air quality standards themselves.

The allowable increase is called an "increment." The increment is always a relatively small fraction of the total pollutant concentrations allowed by the ambient air quality standards, but the precise size of the increment will vary, depending on whether the area in question has been classified as Class I (where the most stringent requirements apply), Class II (the usual situation), or Class

III (where greater increases are allowed). Nearly all of the clean air areas of the country are currently designated as Class II, although 158 large national parks and wilderness areas have been designated as Class I. In theory, certain areas may be designated as Class III to permit additional economic development, but the procedural obstacles to such a designation are substantial and no areas have been so designated to date.

PSD increments currently apply only to two pollutants, particulate matter and sulfur dioxide. A comparison of these increments to the ambient air quality standards is set forth in the following chart:

PSD AIR QUALITY INCREMENTS

	Max Allowable Increase			Primary Ambient Air Quality Standard
	Class			
	I	II	III	
Particulate Matter				
Annual mean	5	19	37	75
24 hr max	10	37	75	260
SO_2				
Annual mean	2	20	40	80
24 hr max	5	91	182	365
3 hr max	25	512	700	1300

Note: All limitations are stated in micrograms per cubic meter; the 3 hr max figure for SO_2 represents the secondary standard rather then a primary standard.

It is important to note that the PSD increment is added onto a baseline representing the existing quality of air in each location at the start of the PSD program. Therefore, the PSD ceilings are not the same for all Class II areas throughout the country. They vary depending on the preexisting air quality conditions, and one of the requirements of the program accordingly is to establish baseline levels in the various areas.

Implementation of the PSD requirements is carried out through a preconstruction review for all major new projects, a term I will use to include both new plants and plant modifications, if they exceed specified trigger levels of air emissions. That preconstruction review includes two major components. One is an air quality analysis to determine whether the impact of the new project will violate the increment limitations on air quality (or the NAAQS) in the surrounding area or adversely impact visibility or other air quality related values. The other is a verification that the project will meet the technology standards of best available control technology (BACT). I wish to emphasize the latter -- every project subjected to the PSD air quality analysis must, irrespective of whatever the air quality analysis may be, install pollution control equipment sufficient to satisfy EPA's determinations of best available control technology.

With this brief explanation of the overall PSD framework, I will now discuss some of the technical requirements in greater detail.

Baseline

The initial challenge confronting any company wishing to build a new plant (and also confronting the regulatory agencies) is to establish the baseline of air quality upon which all computations of increment consumption must be built.

The first point to be understood about establishing the baseline is that we are not talking about a single number for a broad area. Pollutant concentrations can vary greatly from one spot to another even within the same immediate locality. If we think of the wide open prairies, air quality conditions may be similar over a considerable distance. Within a city, by contrast, air quality may vary greatly from one block to the next. Compliance with air quality requirements is calculated on the basis of maximum concentrations at individual "hot spots." The establishment of a baseline therefore must set starting date concentrations for wherever the prospective hot spots might be. In the vicinity of a major source, or even more clearly in a metropolitan area with many different sources, that baseline will represent a display of numbers literally all over the map.

In addition, of course, there is one baseline for particulate matter and another baseline for sulfur dioxides. There are also separate baselines for the annual average and different ones for the maximum 24-hour average, and in the case of sulfur dioxide yet another set of baselines for the highest three-hour concentrations. These baseline complexities will increase further as more and more pollutants are brought under the PSD program.

The first obvious problem in establishing air quality baselines is that such highly detailed data rarely exists. A great deal of air quality data has been collected during past years at various monitoring stations across the country. Often, however, existing data may be unreliable due to inadequacies in meeting sophisticated requirements for accurately calibrating recording devices or other technical deficiencies. Moreover, such preexisting data seldom covers the locations of current concern; extrapolations are therefore required to predict from air quality data collected at one point an estimate of what it might have been at other points some distance away. Alternatively a baseline may be constructed through modeling, which raises even greater complexities and questions about accuracy.

A commonly overlooked complexity in evaluating monitoring data is the dependence of air quality on the weather. Changes in air quality from one day to another, from one month to another, or from one year to another are dramatically influenced by differences in weather patterns (much more than by increases and decreases in pollution output).* Therefore, air quality data is regarded by the experts as essentially meaningless unless it is correlated with meteorological data. Even if a special monitoring program is conducted to collect air quality data for an entire year, that cannot establish a valid baseline in the absence of reliable meteorological data to compare that particular year to other years. Because of changes in the governmental programs to collect meteorological data, most usable data predates 1964, and reliable meteorological data for many areas in the country is simply unavailable.

Another uncertainty affecting establishment of a baseline is this: at what point in time is the baseline to be set? The statute did not make this clear. EPA picked August 7, 1977, which would have established a uniform baseline date for the entire country, but the United States Court of Appeals for the District of Columbia in the recent Alabama Power decision held that the baseline for each separate PSD area should be set when the first application in that area is submitted. One minor problem is that if an applicant has carried out a 12-month monitoring program to develop its application, another three months will be required to analyze the data and complete the application, so the monitoring data will already be slightly out of date. Many other questions remain to be worked out.

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* In fact, available data show that in most cases total air pollution output by industry has decreased.

The biggest of these concerns is what will be the area units for which baseline dates will be triggered by an application. The baseline date will be fixed not just for specific areas impacted by the first applicant but for an entire air quality management area. How big will those areas be? The air quality control regions suggested by EPA for this purpose on September 5, 1979, or the areas designated under Section 107 of the Act as suggested by EPA on January 30, 1980, would both include areas which might be 200 miles from one side to the other. Within those areas air quality could differ dramatically. Thus if the first application in one area is submitted in 1980 the data used to establish the baseline for that particular project probably will be of little relevance in defining the baseline for another project 100 miles away (for which the application might be submitted several years later).

I have only scratched the surface of the technical complexities regarding the establishment of a baseline, but I trust this is sufficient to indicate to you that this task presents many technical difficulties.

Modeling

There is a great deal that one could say about modeling, but I will limit myself to a few general comments. First, modeling involves a computer or paper calculation to predict reality, not to measure it. Modeling is used in the review of new source applications to project the manner in which an estimated quantity of pollution released at the top of a proposed stack would most likely be dispersed through the air, with projections of the pollutant concentrations which would result at different surface locations in various directions from the new source. The modeling methodology used by air quality experts is a source of vast controversy.

The output of modeling analysis depends directly on the assumptions used as input. The assumptions underlying EPA's basic models are simplistic and conservative. For example, emission rates and meterological conditions are considered constant. EPA has not approved any refined models for complex terrain. Adjustments to all models are required to correct for local terrain features, such as hills, valleys, or water bodies. The "downwash" caused by sizable buildings may require further adjustment. Still other adjustments may be needed to reflect local conditions of wind speed and wind direction, temperature of the stac gases and temperature of the receiving air, and differences in stack heights.

These factors all impact modeling accuracy. For example, an error in the assumption of wind direction as small as 2.5 degrees could cause inaccuracies in the predictions of ground-level concentrations from 5% to 40%. To complicate this further, the National Weather Service records wind direction only to the nearest 10 degrees.

The potential for disagreement among experts as to what models should be used and what adjustments in the basic assumptions are needed is nearly unlimited. When the end product of this process is evaluated, most experts appear to agree that modeling results may at best be presumed to have a range of accuracy running from minus 50% to plus 100%. It is not uncommon to hear expert opinions that particulate modeling results are inaccurate to a far greater degree.

With all these difficulties, it nonetheless remains true that modeling is the best predictive tool available for use in projecting air quality impacts. The problem is not modeling. The problem is that in PSD we have created a system that demands orders of magnitude more accuracy than modeling can give.

Increment Consumption

Under PSD, before a major new project can be approved a determination must be made that it will fit within the increment still available within its locality. If the project represents the first application in its area, this may involve a relatively clean determination that the source would not exceed the allowable increment. If the project is the second, third, or fortieth application in an area, however, the process becomes far more elaborate.

The general approach in determining what portion of an increment has already been consumed involves an identification of the baseline data for the area and the baseline air quality at each point of impact within the baseline area; then there must be determined the extent to which growth occurring between the start of the PSD program and the pending application has raised the prevailing levels of pollutants. It may be noted that since August 7, 1978 each applicant has been required to submit one year's monitoring data as part of its application, but -- contrary to what you might expect -- that data does not determine what part of the increment is still available. Instead, that determination must be made through hypothetical calculations based on a complex system of modeling and bookkeeping.

The striking fact is that the consumption of increment is governed by hypothetical emissions, not actual emissions. The basic rule is that although the baseline is designed to reflect actual air quality at the starting date, the allowable increment is consumed by the full amount of all allowable emissions both from existing sources and from approved new sources. An obvious major discrepancy therefore occurs if sources are not emitting the full amount of their allowable emissions when the baseline is set. This is commonplace.

One important example involves the use of fuel for boilers -- many boilers are authorized to burn oil (with significant SO_2 emissions) but in fact are burning gas (with almost no emissions). I understand that a study of the Houston area indicates that this factor alone has totally wiped out available increments in that area. Another huge source of discrepancy would arise under EPA's proposed regulations from the fact that state implementation plans and new source permits typically allow operations of a facility at its maximum design capacity around the clock for 24 hours a day and seven days a week, whereas in reality many facilities may be actually operated for only one or two shifts a day, five or six days a week. Again, emissions from electric power generating stations rise and fall with daily, weekly, and seasonal cycles of demand for electricity, whereas allowable emissions remain constant at a hypothetical maximum operation.

An unintended consequence of these mechanics is that a substantial part of an increment may be consumed merely by making the crosswalk from baseline air quality to maximum allowable emissions. This could be especially important if numerous PSD applications during the next year trigger the determination of baseline during a period of economic recession. The number of auto workers, steel workers, and other employees of heavy industry who have been laid off from their jobs is matched by decreased emissions from the reduced scale of operation. That will tend to set the baseline at lower levels and cause a greater consumption of increment when maximum allowable emissions are computed.

Another consequence of these features is simply the basic fact that in calculating increment consumption we are dealing with a fictional number. It is not a number that can be verified or disproved by actual monitoring. Instead, a set of hypothetical calculations is required. This process begins with the baseline, which itself may reflect a series of projections as indicated earlier. Then a series of debits and credits must be calculated to reflect each new source located close enough to the vicinity of a permit applicant to affect air quality there, or any plant which might have ceased operations during the interim.

If we anticipate that the PSD program will be operated over a period of many years and that numerous new sources may consume small parts of the increment, the determination of available increment will become incredibly complicated. The effect of each previous new source upon the location of a pending applicant must be calculated through modeling. Since the wind blows in many directions and each source consumes a different part of the increment at each different location on the landscape, it is not a matter of simple arithmetic. In addition, the effects of general growth including emissions from residential, commercial, and small industrial sources must also be calculated. Whenever such multiple source modeling is required, vast difficulties will be encountered in resolving the assumptions that should be used in modeling each of the numerous sources which may affect the areas in question.

It should again be emphasized that these complicated determinations would be required for each pollutant and for both long-term and short-term standards.

Monitoring

One PSD requirement that commands attention is monitoring. Section 165(e)(2) explicitly states that each PSD application submitted after August 7, 1978 must include one year's "continuous air quality monitoring data." It must be strongly suspected that Congress assumed such data would be used to determine whether a new project might violate the air quality increments. As is evident, however, it is not used for that purpose. Compliance with the increments is determined by bookkeeping calculations, not by actual air quality. Nor is such monitoring data called for to establish a baseline, at least not in situations where the application may be submitted several years after the baseline determination has been triggered by an earlier application. EPA evidently concluded that general submission of one year's monitoring data was unwarranted, since the Agency's regulations required monitoring only in cases raising a concern that an ambient air quality standard might be violated. That decision was litigated in the Alabama Power case. The court reimposed the rigid monitoring requirement and stated that monitoring must be conducted for all regulated pollutants, ruling that EPA did not have authority to relax the specific mandate of Congress.

The monitoring requirements represent the single piece of the entire PSD program which costs the most, takes the most time, and has the least significance in carrying out the regulatory process. It presents one of the clearest needs for statutory modification.

Costs and Delays

Compliance with the PSD requirements imposes heavy costs and delays on applicants. Of all the federal environmental regulations which apply generally to new industrial projects, the PSD requirements appear as the most burdensome on both counts. Direct costs to prepare an application package and complete the permitting process are likely to total several hundred thousand dollars at a minimum and can be many times higher for a major or complicated project.

More important is the factor of delay. Although you may hear estimates that the permitting can be completed in the range of six months, such estimates cover only that part of the process occurring after a "complete" application is submitted. Legitimate differences may occur between applicants and regulators as to what constitutes a complete application, and in any event substantial additional periods of time will be required to determine what monitoring program is acceptable to the government, to collect one year's data, to analyze and compile such data, and to assemble the package. On balance it seems unrealistic to assume that the process could ever be completed by a company sooner than two years, or more likely three years, after its decision to undertake a project.

For certain small projects the direct costs alone might be a deterrent. Far more frequently the inflation costs resulting from the delay will be a deterrent. Uncertainties as to change during the waiting period in market forces or other factors providing the economic justification for a project represent another serious difficulty. Finally, there may be a risk throughout the process that the final regulatory decision will be negative. For all these reasons it must be recognized that the benefits of the PSD regulatory program are at least partially offset by significant negative impacts on the dynamics of industrial growth and the creation of jobs.

General Observations

It is not the purpose of these hearings to focus on proposed amendments to the Clean Air Act, and I do not intend to propose any such changes. I do wish, however, to make a few limited observations concerning the overall merits of the PSD program.

In evaluating the benefits of PSD, it should be noted that EPA has approved virtually every PSD application upon which it has taken final action. Moreover, with very few exceptions indeed, the PSD review has not resulted in changing the plans for the project or increasing the stringency of air pollution control requirements above those needed to meet BACT. In other words, the entire air quality analysis to assure compliance with the PSD increments typically accomplishes but consumption of money and time.

The few cases where the PSD increment requirements have actually made a contribution toward tighter protection of air quality have involved massive facilities usually located where they might impact a Class I area. For example, the PSD requirements did lead to some change in the pollution controls designed for Units 3 and 4 at the Colstrip power plant in Montana. However, that case involved a huge mine-mouth, coal-fired powerplant with projected emissions of particulate matter as allowed under the permit that was issued totalling 14 thousand tons per year. Moreover, the difficulty experienced in that case occurred because its emissions were expected to affect a newly designated Class I area.

The difference between that project and the smallest projects covered by PSD is breathtaking. New plants emitting 100 tons per year are covered by the requirements. They would emit 140 times less than the levels that were approved for Colstrip. For plant modifications, the contrast is even starker. They are subject to the full PSD requirements with even smaller levels of emissions, perhaps as low as 10 additional tons per year.

The critical point is that facilities with emissions as small as these cause impacts that are barely noticeable in the calculations of increment consumption. Because of the many variables in completing all the hypothetical calculations required and the shakiness of so many assumptions upon which those calculations are based, the actual emissions from the new facility may become one of the smaller items in the technical debate. The decision to approve or disapprove may depend more on the resolution of technical factors -- calculation of the baseline, projection of emissions from other sources in the area, effects of general growth, the selection of models, and the accuracy of meteorological data -- than on the new plant itself.

Meanwhile, the PSD program is moving toward even greater complexity. Section 166 of the Act requires EPA to establish regulations to prevent significant deterioration with respect to the other criteria pollutants in addition to particulate matter and sulfur dioxide. EPA has begun this process, and although a recent study performed by EPA contained a finding that no additional requirements are actually needed the force of the legislative mandate suggests that further requirements will be imposed. In addition, EPA is developing regulations to protect visibility values, which are certain to result in additional monitoring and modeling requirements.

We recognize that it is beyond the capability of this Committee to undertake this year a review of this program directed at achieving needed modification in the statutory requirements. I believe, however, that any close look at the technical and administrative realities of implementing these program requirements will make clear that they cry out for at least certain types of modification. We urge this Committee to place this item high on the agenda for thorough exploration and action early after the next Congress convenes in January 1981. I hope that this presentation has helped to identify some of the areas which should be considered, and I would be pleased to answer any questions you may have.

Mr. WAXMAN. Thank you very much. That was an excellent presentation.

Mr. Ayres.

STATEMENT OF RICHARD E. AYRES

Mr. AYRES. Mr. Chairman, members of the subcommittee:

My name is Richard Ayres. I appreciate the subcommittee's invitation to appear at these oversight hearings on the Clean Air Act to present the views of the Natural Resources Defense Council.

This hearing focuses on aspects of the programs to prevent significant deterioration of air quality and to attain minimum Federal health standards in areas where they are now violated, nonattainment areas.

For some time, industrial interests have argued that certain elements of these programs are unnecessary, unduly burdensome, and overly complex and time-consuming. They leave the impression that the complexities of these programs were concocted by bureaucrats to delay and bedevil industry, rather than to make, or keep, the air clean.

I don't agree with this view. In my view, some of these complexities are inherent in the problem of controlling air pollution. But others described by Mr. Quarles are the direct result of a continued industrial opposition toward the clean air program that makes reasoned accommodation impossible.

Dealing with air pollution involves a certain degree of complex Government regulation, which cannot be wished away. The private market cannot resolve conflicts between breathers and industry. Without Government intervention, private firms have no incentive to spend money to reduce the amount of air resource they use.

Moreover, the air is a public resource, not one that can be appropriated by private interests. For at least six centuries, western governments have given primacy to the public's right to use and dispose of air quality.

Air pollution regulation cannot be simple, either—no more than today's complicated private markets can be. Measuring the quality of air, or the amount of pollution emitted from a process, is not simple. And air pollution is emitted from hundreds of thousands of industrial sources and millions of private households and automobiles, which means that regulation will inevitably be difficult.

The reaction of industry to regulation, however, can make solving a complex problem less complex—or more expensive, uncertain, and complicated than it needs to be. So far, many major industries have chosen to make it more difficult. The PSD program is a good illustration of this. Opposition over a decade has made this program increasingly complicated to the point where those who fought against it now complain of its complexity.

As the Congress stated when it passed this program, PSD has several purposes: Preventing the destruction of especially valuable pristine air quality, protecting health and welfare, and insuring maximum opportunity for future economic development consistent with the public interest in clean air.

When the 1970 law was passed, President Nixon's administration assured Congress that clean air would be preserved. But industrial opposition made this promise a dead letter until 1973, when the courts reiterated the point and finally enjoined the Environmental Protection Agency to adhere to the law.

EPA and environmental organizations offered several possible regulatory programs for preventing significant deterioration, some of them simpler than the one chosen. Rather than accept the court's determination, and cooperate in the development of workable regulations, however, industry continued to oppose any PSD regulations.

In 1975, industry brought its fight to the Congress, urging Congress to repeal the PSD regulations. Had industrial interests shown they were willing to support an effective PSD program, it might have been made simpler. Instead, they opposed it, bitterly. In 1976, they showed they would kill a bill that was the product of 2 years work by the Congress rather than accept PSD.

In 1977, they again fought bitterly against PSD, adding more and more complexity in an effort to weaken the law. Many of you remember that, I am sure. When the 1977 bill left this subcommittee, for example, it had one increment system. When it finally passed, industrial lobbying had added two more to create special exceptions for specific kinds of industrial sources. Since then, industry has used this as an example of how unworkably complex the law is.

Scarcely before the ink was dry, industry began to litigate every word and phrase in the law. They litigated when the law would take effect, who would be covered, and a host of other issues. They continue to seek drastic changes in the program even today, here before you, and at EPA. Mr. Quarles has described how litigation has complicated the baseline issue. I think it is important for you to realize that litigation was industry litigation.

I listened also to the description of the forest products survey mentioned earlier. I read that study and I would read it quite a different way. What it seems to me to suggest is another cost of uncertainty caused by opposition. Most of the permits described in the study were slowed to some extent by the fact of uncertainty in the regulations. But where did that uncertainty come from? The major uncertainty the study describes was the *Alabama Power* decision which was pending at that time in the courts. That was a case brought by the very industries which now complain that the bringing of the case slowed down the program.

So my conclusion is that this 10 years of history is not consistent with the thesis that bureaucrats are responsible for the continued upheaval over the PSD program. In fact, it is hard to escape the conclusion that industry deliberately chose uncertainty and delay over an effective, relatively less complicated, PSD program.

The situation might be summed up this way. Over 10 years, society has made the choice that presently clean air should not be degraded. Industry has had its day in court—and in the administrative agencies and the Congress—to argue against this choice, and has lost. I think it is time for a different attitude on industry's part. But I still do not see it.

For example, industrial interests continue to oppose the idea that they should spend a few tens of thousands of dollars monitoring the preexisting air quality in an area where they want to build a plant that may cost a billion or more dollars.

If the Government is to fulfill its duty to its citizens to safeguard the increments, it seems obvious to me that it must know what the air quality was at a site before a plant is built. With a little planning, this requirement need not cause any delay at all, because the monitoring can be accomplished prior to the time the industry decides to begin construction.

Industry also complains that permitting authorities have too few people to process permit applications quickly. Yet it does not suggest that EPA take seriously the requirement, already in the law, that States charge a permit fee sufficient to cover the costs of processing and monitoring permits. That is in the law already. No one on industry's side is urging that it be taken seriously.

Listening to the complaints about the PSD program, one cannot help being struck by the remarkable difference between the issues raised—the technical details of increments, modeling, and when an air polluter becomes a major source subject to permitting—and the remedies urged—drastic amendments to the Clean Air Act.

If the technical details—and not the basic program itself—are the true concerns, then it seems time for industry to end the adversary approach that has been taken for a decade, and propose realistic adjustments, if any, that acknowledge the legitimacy of the basic elements of the PSD program, such as permitting, monitoring, installing best control technology, and safeguarding the increments.

I must say I was pleased to hear Mr. Quarles mention that his organization does acknowledge the legitimacy of some of these elements but I think it is not enough simply to come before you and complain about technical problems with the existing system. For if these details are to be redressed, then some constructive suggestions need be put up as well.

If no constructive suggestions come forward, it is hard to escape the feeling that perhaps the details are not really what is on the minds of those who bring the issues before you. And I would hope that is not the case for next year.

Thank you, Mr. Chairman, for inviting us to present our views, and I will now take questions.

Mr. WAXMAN. Thank you, Mr. Ayres.

Let me address this question to both Mr. Quarles and Mr. Ayres.

Mr. Quarles, your testimony suggests the need to shift away from air quality analysis and move toward technology based standards. Earlier today, we heard from a vice president of a small firm in Georgia who would like us to move away from technology based standards. Where is the proper balance?

Mr. QUARLES. I won't comment on the presentation made this morning because I haven't had a chance to study it, and I didn't hear the back-and-forth adequately well to feel I could comment on that. But let me address your question in reference to the PSD program.

The point I would make is that the BACT requirements which, in effect, are a technology standard, are applied to all significant new sources and modifications of existing sources as a routine matter, and I would urge that that be continued. I think that is a wise social and environmental policy.

Once that is done, then a high level of control has been achieved and a review of the record on the PSD permits that have been acted upon, or a review of the analysis of PSD permits anticipated for submission to the agency in future actions, will show that in the vast majority of the cases, and I suspect we may be talking about 95 or 98 percent of the cases, no additional requirement will be imposed beyond BACT as a result of the rest of this review.

One area that calls out for consideration by the committee is whether it might be possible in advance to identify a lot of these cases that are not going to be affected by the rest of the regulatory process, and exempt them from that process so as to save the cost and the effort to both the companies and the agencies.

Mr. **Waxman**. If you rely on BACT, would you still then be able to have a system to know whether you are using up the increments in the PSD system so you still have a system and not just the requirement that the best available control technology be used, or do you think we need a PSD system over and above that?

Mr. **Quarles**. I think there are a wide range of possible ways in which that could be worked out and at least some of the possibilities would meet the concern you identify.

In other words, when a company submits a PSD application, the burden rests on that company to come forward with a modeling analysis showing the extent to which the increment has been consumed by all new growth since the baseline date was triggered, whether or not that new growth went through the PSD system.

In other words, to get a PSD permit, a big powerplant has to deal with the consumption of increment by residential development or the small commercial sources and include that consumption of the increment in its modeling and other analyses. So the answer is yes.

Mr. **Waxman**. Mr. Ayres, how do you react to that? It seems to me if the burden is placed on the new source to show the increment it is going to use up, and that it is going to be required to use the best available control technology, wouldn't we still be protecting the PSD system?

Mr. **Ayres**. I am not sure I understand entirely what Mr. Quarles was describing.

Mr. **Waxman**. Do you see any necessity for a modeling system and a whole range of other requirements that Mr. Quarles described as only a hypothetical guess as to what, in fact, is happening, as opposed to a system where we might be able to more realistically ascertain whether the increments are being used?

Mr. **Ayres**. I certainly don't want to be put in the position of being a defender of modeling. As I mentioned in passing in my testimony, modeling was primarily the invention of the regulated industries in this field, and it is by no means ideal.

I don't see any way to avoid using modeling, however, nor do I see any way to avoid some sort of monitoring if we are going to know what the air quality is out there or was out there at a given spot prior to the time a major source is constructed.

It may well be that the permits that have gone through in the first couple of years have not resulted in additional controls, although I think I could come up with a list of some important ones that have, but that may not tell the whole story because in many cases those may be smaller sources which are consuming part of the increment, and it will only be later as more sources are added in those areas that the increment begins to demand additional amounts of control.

So I don't think the fact that so far most of the sources permitted, if that is the case, have only had to meet BACT necessarily is an indictment at all of the need for some sort of check on what they all add up to at the end.

Mr. **Waxman**. Mr. Ayres, Mr. Quarles suggested that the PSD program, with all its laudable goals, has not resulted in changing the plans for projects and increasing the stringency for requirements. Do you feel the PSD program is working?

Mr. **Ayres**. I would like to reserve judgment, myself, as to whether I think the PSD program is working. I think one of the objectives of the National Commission on Air Quality, which I hope will have its life extended so it can prepare a report for all of you, is to examine that question.

So far, I think there is very little hard information on whether that program is working or not. One hears a lot of anecdotes about it, and I think they are not much more than that. I think we need to have a more complete sense of exactly what is going on in those permits than we have now before we can reach a judgment about that. So I am hoping that the commission will have a chance to provide that for you come to examine the law next spring.

Mr. **Waxman**. Mr. Quarles, you said that modeling is not the problem, but rather the problem is the system that demands more accuracy than modeling can give.

Didn't the Clean Air Act Amendment of 1977 contain variance provisions which were designed to relieve some of the pressures on modeling, and what has been the experience in using these?

Mr. **Quarles**. I can't speak in any broad way as to the experience in using the variance procedures, but in regard to the PSD program, the requirements are rigid and the necessity for relying on modeling remains. I would like to expand that response if I could, and comment on what Mr. Ayres said a moment ago.

I don't believe it is accurate to say that modeling was the work product of the regulated industry rather than the regulating agencies, but in any event, I think it is irrelevant whose work product it was.

The point is we have a Clean Air Act that is based in its most fundamental sense on the necessity to make calculations of what the impact of sources will be on ambient air at ground level, and there is no way of doing that without some method of calculation.

So the tool was developed, and it is in use. The problem is the construction of this extraordinarily large superstructure rested upon this shaky foundation, and that problem becomes more severe the smaller the source is that you are talking about. The more you go down the scale toward a small new source, the more you get into a situation where the ultimate equation that is worked out is going to depend a great deal more on how all these hypothetical assumptions are guessed at than it will on the actual emissions from that new facility.

And the cost, of course, and complexity of the calculation is just as great, although the budget for the project is much smaller; so the inequities and the difficulties of the system become more severe as you go down that scale, and the benefits of it are much less.

Mr. **Waxman**. Do you foresee if we had a different system for a large source as opposed to a small source that the complexity would be less so that the time period that Mr. Burns talked about wouldn't be a barrier to getting going with a business that now has to wait so long to get the necessary permits?

Mr. **Quarles**. I think one of the most constructive things your committee could do would be to attempt to look with a little greater detail at different types of new plant construction because the commonplace situation we have in all the environmental regulatory programs today is that we have designed a super regulatory framework around the concept of a huge prototype massive industry, heavy industry, lots of pollution, severe problems, probably a huge capital budget, long leadtime in the planning, and then we have attempted to apply that system to every little modification that comes through. There should be some differentials established so that the extent of regulatory review, as well as extent of requirement, is adjusted according to the nature of the project that you are looking at.

Mr. **Ayres**. Could I comment on that?

Mr. **Waxman**. Yes. Doesn't that become more complex with a different standard by which each industry, each source would have to meet?

Mr. **Quarles**. It depends on how it is developed. If the outcome of that result would be to remove or exempt, for example, from the monitoring requirement those projects that are of very small size and in an area where there has been no significant consumption of the increment, you would simply eliminate a certain category of sources from parts of it and thereby have in the aggregate a far simpler regulatory process and lighter regulatory burden than we have today.

Mr. **Waxman**. You feel you might well be exempting enough of the increment away so that we, in fact, allow a great deal of deterioration up to the increment, absorbing the increment, which would leave little over for the kind of determinations we might want to make?

Mr. **Quarles**. There are any number of ways it can be worked out, so we are fairly far out on the limb as far as guesswork is concerned. I am assuming all the facilities we might exempt are still going to go through BACT, so they are still going to put in the exact same pollution control system they are under as the system today, and there will be no change in the result in ambient air, and there could be a variety of safeguards to bring them into a fuller regulatory review if the necessity appears, rather than having a statutory scheme and a regulation scheme that mandates this full soup and nuts technical treatment every single time.

Mr. **Waxman**. Mr. Ayres, how do you respond to that?

Mr. **Ayres**. I was going to raise one point on the other side of that suggestion. I think the morning testimony from the Nipro industry suggests one of the problems with trying to draw distinctions of that sort. I think what they were telling you was that because of their normal economic interests, instead of building a larger boiler, in order to avoid regulation they built three smaller, less efficient, more oil-consumptive boilers.

If you begin to differentiate in fine-grain ways between different sized sources, you have to keep in mind that that also has an impact on what happens out there. It may well have some pollution effects that are not foreseen in the program itself.

Mr. WAXMAN. But are you not saying that whatever regulation you come up with someone is going to try to figure out how to get around that regulation, and that is an inevitable result of regulations?

Mr. AYRES. That is right, but then the real issue is how much opportunity you provide. You can provide more, or less.

Mr. WAXMAN. They would be awfully creative to give more opportunity for Government to regulate and then adopt one set of regulations they want to get around.

Dr. Carter?

Mr. CARTER. Thank you, Mr. Chairman.

Mr. Quarles, weren't you with EPA?

Mr. QUARLES. Yes, sir.

Mr. CARTER. It seems to me I remember your testifying before this committee.

Mr. QUARLES. On several occasions.

Mr. CARTER. More than once; yes, sir.

When did you leave EPA?

Mr. QUARLES. 1977.

Mr. CARTER. Well, I must say that you have given one of the most detailed, comprehensive, and I think sensible, explanations of this legislation of anyone who has testified today. I can see that you have a good place to apply your acquired knowledge. But, in any event, your testimony was exceptionally good.

What, at the present time, is the best available control technology for coal-fired plants?

Mr. QUARLES. I am not going to be the best source on providing specific requirements for individual industry categories.

Mr. CARTER. Can anyone answer that question?

Mr. AYRES. Well, Dr. Carter, I think I can certainly give you our view of it. Our view of it is in terms of the ability to economically remove pollution, pollution control scrubbers are probably the most effective of the control devices that we have now.

Mr. CARTER. How much do scrubbers increase the cost of producing electrical power?

Mr. AYRES. I think that is difficult to put an exact figure on, but I think on new sources most people operate with a number in the range of 10 to 15 percent of the cost of the plant.

Mr. CARTER. We have information from rural electric cooperatives in Kentucky—these are consumer-owned groups—stating that the increased cost to consumers of compliance with Government regulations is approximately 39 to 40 percent. There is an added cost, of course, but there is an improvement in the environment, also.

It seems, after listening to Dr. Quarles that monitoring air quality is quite a problem, is it not, Mr. Ayres? How would you suggest air monitoring should be implemented in an entire region? Sometimes the region can cover quite a portion of a State.

Mr. Ayres. I think monitoring is something we have neglected a great deal. I think we can go about it in the context of large areas by requiring it when a new source gets ready to move in. It doesn't probably make sense for us to try to monitor every square mile of the country under the possibility that somebody may one day come in there.

Mr. Carter. Lets suppose you are reaching a level at which the air is so bad it may cause respiratory difficulties, and you might have to close down a plant, or something of that nature. How would you go about monitoring the air quality of that area?

Mr. Ayres. The major urban areas have monitors, Dr. Carter.

Mr. Carter. Yes, sir.

Mr. Ayres. Many don't have as many as EPA has regarded necessary for some time, but most of them do have some monitoring.

Mr. Carter. Suppose the air quality is just above the permissible level in a certain area. What are you going to do about it?

Mr. Ayres. You mean if it is monitored as being above the permissible level?

Mr. Carter. Yes, sir.

Mr. Ayres. Ordinarily that would mean that some sort of program for abatement has to be in place to achieve cleaner air.

Mr. Carter. Is it very easy to arrive at the figures for a large area, or would you average the different figures arrived at by different monitors?

Mr. Ayres. I don't think, given our present standards, I don't think that averaging makes sense, because we are using standards that guarantee the air quality in any given location will be healthful for whoever happens to be there.

Mr. Carter. What if you are monitoring emissions at the top of a smokestack?

Mr. Ayres. I think you would find that at the top of practically any smokestack you would find a violation of the air quality standards if you measured there. But normally they are not measured there.

Mr. Carter. But the standards for the amount of emissions are set by taking into account the emissions from the stacks.

Mr. Ayres. They are set, however, in relation to standards for ground level.

Mr. Carter. The standards are set according to the number of tons of SO_2 or NO_x, or whatever, that are emitted by that stack per 3 hours, or 24 hours, or other unit of time, I believe.

Mr. Ayres. Those are emission standards, Dr. Carter.

Mr. Carter. That is exactly what we are talking about.

Mr. Ayres. Those are set in order to achieve certain ground-level concentrations, and I was talking about monitoring those.

Mr. Carter. Considering the considerable margin of error involved in air-quality modeling, do you think air standards should be adjusted to allow for these errors, Mr. Quarles?

Mr. Quarles. That is an extremely difficult question to respond to, because you then have to ask how would you modify the requirements, and one element of the picture to keep clearly in mind is that in every instance where one has to make, in effect, a guess, you may be guessing high, and you may be guessing low, so, to the extent that you don't know how the air quality actually compares with your hypothetical analysis, you don't necessarily know whether the air is worse or the air is better.

There is a general feeling, and I think some basis to support it, that the EPA and State regulatory requirements tend to be conservative so that they tend to indicate, or for higher levels of pollution rather than lesser levels, but you still would have the uncertainty to deal with.

Now, I think what many people feel would be an improvement would be not to base the system as heavily as we do on the requirement that the standards be exceeded only once a year, because that requirement means that the system is driven by the peaks, and the peaks are more apt to be difficult to measure than the medians or the averages.

I am not making that proposal. I think that is something that would require a lot of thought, and if you made that change, you would have to make offsetting changes to compensate for it, but I know there are many who feel that some movement in that direction would be beneficial. That is the type of subject that I think the committee might consider after it gets a better handle on what the technical aspects of the program are.

Mr. **Carter**. Mr. Ayres, do you consider the EPA's new source performance standards for utilities sufficiently flexible? And do you believe these regulations reflect attainable standards?

Mr. **Ayres**. Dr. Carter, I think we regard them as overly flexible, and I think they are quite achievable. I think our view was that substantially greater control could have been achieved with technology at the present state of the art for those powerplants.

Mr. **Carter**. I have one more question, Mr. Chairman.

Mr. Burns, has your company been involved in research toward perfecting modeling techniques for measuring the quality of air?

Mr. **Burns**. Yes, sir, we have.

Mr. **Carter**. What sort of research do you know of in this area?

Mr. **Burns**. Dr. Carter, let me mention first the definition of research. This is more in terms of investigations of new modeling methods, how they are done, what kinds of inputs go into the modeling. I think the answer to your question is that there are enormous differences between various modelers. One scientist has a very different opinion from another scientist, and I think they are both very sincerely giving their viewpoints and opinion, and I think they can actually support that viewpoint and opinion, you know, with the general public.

However, I think the problem occurs when you are being regulated on one or the other of those opinions. And those are the kinds of problems that my company has been involved in, sir.

Mr. **Carter**. Thank you very kindly.

Thank you, Mr. Chairman.

Mr. **Waxman**. Thank you, Mr. Carter.

Mr. Satterfield?

Mr. **Satterfield**. Thank you, Mr. Chairman.

I listened with great interest to this discussion and particularly to the remarks of Mr. Quarles. One of the things that has disturbed me from the beginning, and still does, about the 1977 amendments is that Congress, which is admittedly not made up of expert engineers, sought to establish source performance goals by a time certain when there was no available or existing technology to meet those goals at the time specified. And it seems to me that this whole situation was complicated by attempting to relate fixed geographical points in finite terms to a constantly moving, changing air mass.

If I extend that one step further, it would seem to me, based on what Mr. Quarles has said today, that we in Congress should find at long last—maybe it might shock us—that we really can't make specific that which is not specific simply by enacting legislation.

I know something about the movement of air, having been an aviator, and I know how the upper air moves throughout the country, and I know there is a constantly changing air mass at ground level. It changes because of temperature, because of moisture content, and because of the interaction of the upper air bringing cold air from the Arctic and warm air from the gulf and other areas.

I understand that this is constantly changing, and I do not see for the life of me how one can pick a baseline that is going to be in any way accurate throughout a year or throughout any period of time. It seems to me that the peak periods that Mr. Quarles addressed are exactly what we have locked ourselves onto, and we are really predicating what we are going to do based on those extreme unusual situations rather than the average ones.

Mr. Quarles, your criticism of PSD, it seems to me, while largely technical, does imply that this program is so unrealistic it may be virtually unworkable and that, as time goes on, it will cause more and more trouble. Is that an accurate statement?

Mr. QUARLES. Yes, sir.

Mr. SATTERFIELD. That being so, does it make good sense to you, with the margin of error in monitoring and modeling that we see today, does it make good sense to have three separate classes of PSD increments?

Mr. QUARLES. Well, I think it does not make sense to have a system with as much detail in it and as many sources subject to it and as many requirements applicable to each source which is subject to it, as we have.

Whether that means we should eliminate one or two of the classes and apply the whole PSD system only to the areas where you really have something at stake, such as the national parks, that would be one possibility. Whether you should apply the complicated requirements only to the really big sources which inherently have a longer leadtime and bigger budget to carry the cost, that might be worth exploring.

Whether it would be possible to make some general exemptions from many of the requirements across the board, there are any number of ways in which the fanciness of this system could be reduced.

But the beginning point of any of this is to take an honest look at the extreme difficulty we have got in administering the program which we have, and also to look at the way that applies to the range of cases subject to it in reference to the benefits that are derived from doing it even if you can.

My analysis is that when you look at this that way, you are driven to the conclusion that some modification should be made, and yet especially politically I would not be driven to the conclusion that this means you should scrap the whole thing and try to start all over again. I think that is not politically beneficial, and it perhaps wouldn't be substantively realistic even if you could do that.

Somewhere in that middle range would be a better chance of a program that would provide some air quality benefits at a lot less economic detriment.

Mr. SATTERFIELD. I suppose my previous question really leads to the next one. I recall back in the mid-1960's, when we began moving into this program, and there wasn't too much known about the content of air in terms of what was natural air and what was a pollutant, or how to measure them, I supported, as a very good approach the concept that we wrote into the 1970 act that EPA should develop national ambient air quality standards to protect health, and to protect welfare with a reasonable margin of safety.

That made great sense. The concept that every area in the country would come forward with a plan to assure those areas would meet that ambient air quality standard and thus insure health and welfare, made good sense.

In 1977, we went one step further and established three different classifications of PSD. It seems to me that would have been more logical, and I guess my question is, whether or not it is more logical for Congress once we decide some areas have to have air cleaner than the ambient air quality standard, to state in legislation how much cleaner it should be and leave to EPA the standards to be set rather than lock such standards into legislative concrete?

Mr. QUARLES. One major factor bearing upon that which I hope emerges from the testimony I delivered earlier, is the connection between the type of limitation that the statute imposes and the methodology that one has to apply to determine compliance.

If we are talking about an ambient air quality standard and the violation or compliance with that standard, there you have something that someone can go out in present times and monitor reality to see what the margin of safety is.

Whether that is 1980 or 1983, or 1977 or 1990, the standard won't change, and one could go out and get a snapshot.

Now, what we have instead in the existing program we have is this extraordinarily complicated—almost, I think, in the future it will be impossible—technical requirement, to make the guess in 1985 what the baseline was in 1980, and what the consumption of that increment has been in the intervening 5 years through a whole set of calculations that are impossible of demonstration, whether they work or not.

So that is a real core of technical difficulty in the program and any steps that would be taken to reduce the frequency with which that problem has to be faced would simplify the program.

Mr. SATTERFIELD. I mention that because it seems to me there is an alternative way to go, and this reflects something that happens time and time again in legislation, that instead of attempting to mandate performance leaving the design of how you achieve it to those who must enforce it, legislative bodies get themselves involved in design itself as well as performance requirements, and this is the mistake we made in the 1977 amendments—a mistake which you are addressing your remarks.

Mr. **Quarles**. Absolutely. Take the requirements on monitoring. It might have been possible for the Congress to lay the burden on EPA to require such monitoring as is necessary to assure compliance with the various requirements that were laid down. Instead, Congress went the extra step and wrote into the statute this requirement of 1 year's continuous air quality monitoring data in every instance. Industry didn't want to do it. EPA, I think, didn't see the value in requiring industry to do it.

The court quite properly said, the law is the law; Congress writes the laws; this is what Congress wrote as a law; this is the law that has to be enforced.

So we are back to that rigid requirement that emanates from the statute.

Mr. **Satterfield**. I will not take up more time except for a comment. There is one aspect of the Clean Air Act that hasn't been addressed. I would like to ask you whether or not you see similar difficulties in implementing the visibility protection requirement of the Clean Air Act?

Mr. **Quarles**. The visibility requirements are going to raise all sorts of extraordinarily difficult problems, primarily because the technical methodology isn't on hand to carry out the statutory mandate, and as the agency and the industries strive to cope with this, it is going to be difficult.

Furthermore, visibility is, in its objectives, very much overlapping with the PSD, so we look toward the prospect of two interrelated programs, each with a lot of their own specific requirements, both rather awkwardly striving to achieve what is, I think, ultimately to be regarded as a very valid objective.

Mr. **Satterfield**. Here again, is one area I have had some experience with as an aviator, I know it is much more difficult to look through air which has heavy moisture content than dry air, and I don't know how you are going to control that kind of visibility factor.

Thank you, Mr. Chairman.

Mr. **Waxman**. Thank you, Mr. Satterfield.

Mr. Stockman?

Mr. **Stockman**. Thank you, Mr. Chairman.

Every time I listen to experts like yourself discuss PSD, I am reminded of the fable about the emperor that had no clothes. There is much argumentation and dispute, that sometimes I wonder whether you are talking about something that is real. Therefore, I would like to go to a basic question; Does it make sense to be arguing about 1 microgram per cubic meter when you are below any threshold that anybody has ever argued in terms of public health effects or even whether you are going to cause some corrosion on paint on the side of a house or factory?

For example, take a typical class 2 PSD area for SO_2. The last time I checked in Miami, the baseline was 8 or 9 micrograms compared to a primary standard of 80. Since that is a class 2 area, that means you are talking about a quarter, from 8 to 9—which is practically nothing—to 29 maybe.

Why do we go through this pretext, and in my view fiction, that you can fine tune on a prospective basis the management of every cubic foot of air within that corridor on the basis of model results, which I think Mr. Quarles has indicated. That reminds me of the story about the economist who fell in the deep hole and someone asked how he was going to get out, and he said, "Assume we have a ladder." And models are basically assumptions, and you are talking about infinitesimal amounts in terms of anything relevant to public policy like health.

I really think this whole thing is absurd. Can somebody on the panel convince me otherwise?

I think if you want to be concerned about the alleged goals of PSD, we should have tertiary standards to protect visibility or health values for certain areas of high national interest, but what are we doing with this kind of fiction and game and nonscience parading in the form of science in most of the industrial urban or semideveloped areas of the country where it simply doesn't make a lot of sense?

Mr. Ayres. I would respond to that just briefly. I am not here to say that every paragraph, period, and comma of the PSD program is sacrosanct, but you were not here, I think, to hear most of my remarks, and I think one of the reasons we have a complex system, one of the most important reasons, is that we have had an adversary process over what sort of system it should be. I have noted, for example, that when this bill came out of this committee, 3 years ago, 4 years ago, it had one increment system. Between then and passage, it got two more. That was not because those who were concerned about preventing deterioration added them; it was because the process was adversary, and I don't know whether that can be changed, but I think if we are to have a system that is simpler, then it will have to come from some basic decisions being made in the industrial sector. I think that the basic requirements, the basic notions, in this code are ones that are legitimate and should be pursued.

Mr. Stockman. I understand that, but why couldn't we have a much simpler system in concept? You said there was an adversary process regarding the numbers on increments, and there was. But let me ask you this: Why couldn't you set absolute value for the tertiary standard just like we set absolute value for the primary and secondary standard, and then simply mandate the State or the local air quality region involved to require in the SIP's that those standards be maintained or achieved?

Why do we need this system of elaborate machinery and all of this quantification of things that can't be quantified?

Mr. Ayres. I noted also in the testimony that back in the days when EPA first sat down to try to work out a PSD program, there were a number of different suggestions for methods and many of them were simpler, but this kind of system is the one that resulted, and it resulted not just from controversy over what numbers should be, but from controversy over whether there should be a PSD system. In effect, I think many elements of the present program arose from opposition to any program, and that continued opposition brings issues in front of you, for example, instead of working them out at an administrative level, and inevitably creates complication.

Mr. STOCKMAN. I agree with that, but I wonder if you would agree that all deterioration at ranges below the primary or secondary standards is not created equal. In other words, in the case of the SO_2 mean average, for instance, it seems to me I would be more worried about deterioration of 10 points in the range of 40 to 50 micrograms than in the range of 3 to 13. Yet under the basic structure of this program all deterioration is created equal. I have always suspected that some of those in the environmental movement are against growth rather than against deterioration in some rational, balanced, plausible sense of the word.

Would you agree that all deterioration is not created equal?

Mr. AYRES. I am not sure I know what you mean.

Mr. STOCKMAN. I tried to give an example. Would you think it is probably greater concern if you want to prevent deterioration below the primary standard to manage or restrain, say, deterioration of air 40 to 60 micrograms per cubic meter of SO_2, as opposed to a worry in the 5 to 15 microgram range?

Mr. AYRES. It seems to me that the objectives of the program are: One, to protect the cleanest areas, the areas of great scenic value, for example; two, to prevent rapid deterioration in the relatively clean areas to the levels of the presently dirty areas, in part because we think we can do better, and in part because those areas provide a reservoir of clean air to flush out the effluents of this part of the country, and also I think in part in order to make for a growth in the future that is less polluting so that more of it can occur.

Now, given that, it seems to me that there are really two different kinds of objectives. Some very small amounts of pollution may impinge on the objective of preventing the deterioration of the pristine areas highly valued for scenic value, and in those areas, very little pollution does constitute deterioration to be concerned about, I think.

In the other areas——

Mr. STOCKMAN. Is that by premise or empirical demonstration that something is impaired, such as visibility, when you begin at a very low baseline or almost nonexistent baseline?

Mr. AYRES. I think it is based on such things as visibility, yes.

Mr. STOCKMAN. Is there hard empirical evidence demonstrating that?

Mr. AYRES. I am not an atmospheric scientist, but, as I understand it, there is—that very small increments to very clean air make fairly large differences, much larger than the same increment added to relatively dirtier air.

Mr. STOCKMAN. Mr. Quarles, would you want to comment on that?

Mr. QUARLES. I would like to comment on the general discussion you are having with Mr. Ayres as well as the specific issue.

I would agree with the point you are making, that there should be less concern; and there certainly would be less potential health impact, if that is what is involved, in a degradation in the 8 to 28 range than there would be in the 48 to 68 range. I think that should be obvious.

Another item I covered in testimony I prepared for delivery to this committee last November, and submitted for the record, though I didn't have a chance to deliver it personally, is the question of where is the population, because the PSD system treats all areas equivalently, irrespective of whether anybody lives out there and is being exposed to the degradation. It would be a possibility that a company unable to locate a plant in a remote area, whose increment had been used up, would be driven by PSD to build that same plant in a more densely populated area, which had a higher baseline, but hadn't yet had the baseline used up.

So there are some very real questions as to whether the design of the program moves you in a direction that protects health, particularly again on the assumption that you are going to require everybody to put in BACT as a basic requirement in every instance.

If I could add one further comment to the discussion you had with Mr. Ayres, I was struck when Dick presented his opening remarks, and he has again emphasized the point, and I think correctly, that the reason we have the system we have can largely be ascribed to the confrontation politics that has dominated Clean Air Act discussions throughout the last decade.

I remember when the Clean Air Act was passed in 1970. The final debate over its original format—and this focused basically on the auto standards—occurred in that first month after EPA was created in December of 1970. I seldom have witnessed anything more acrimonious than the arguments that occurred then between whether we were going to have a tough bill and protect public health, or a weak bill and cave in to industry; and most of the debate over the intervening 10 years has been at about that level of intellectual caliber.

Now, that is perhaps why we are where we are. It is a separate question whether this is where we want to be.

Mr. STOCKMAN. That is the point I am raising.

Mr. QUARLES. This really is in the public interest, and maybe there are new people up here. I am new up here speaking on behalf of some of the concerns of industry, but with some sensitivity to the broader concerns of the public. I am also representing 17 building trades, and they don't care why this battle developed the way it did. Their attitude would be a plague on both your Houses. We would like to have something that would make some sense.

We ought to forget how we got to where we are. We ought to try to put the confrontation politics behind us. We ought to try to work in a calmer, more cooperative attitude to look at what we have, and consider how it serves the public interest, and whether it can be improved.

Mr. STOCKMAN. Thank you.

Mr. WAXMAN. Mr. Maguire?

Mr. MAGUIRE. Thank you, Mr. Chairman.

Mr. Quarles, if I may refer to your written testimony, at the bottom of page 5 you refer to the fact that best available control technology is required under the law. It wasn't clear to me from what you said here as to whether you agree or disagree with that aspect of the law?

Mr. Quarles. I agree with that. I think it is sound social policy. I think it is a part of the Clean Air Act that will not change and should not change.

Mr. Maguire. Thank you.

On page 7, at the top, you refer to the fact that there is one baseline for particulate matter and another for sulfur dioxides. This is in the context of a discussion about the complexities of the law.

Mr. Quarles. Yes, sir.

Mr. Maguire. I just wondered whether you felt there was a valid alternative? Could you, for example, have the same baseline for particulates and sulfur dioxides?

Mr. Quarles. No. In the present scheme of the PSD regulatory framework, the increment is built upon the baseline. The baseline reflects actual air quality conditions, and that would be akin to legislating that pi is three to try to say that the baseline for particulates is the same as sulfur dioxides.

Mr. Maguire. What was the point in making that comment at the top of page 7?

Mr. Quarles. The point was merely to help all of us understand what the requirements are, and what data needs to be collected in order to meet those requirements.

Mr. Maguire. You were not inveighing against those requirements at that particular point in your text?

Mr. Quarles. That is correct.

Mr. Maguire. At the bottom of page 8, in a footnote, you indicate the available data show in most cases total air pollution output by industry has decreased. I wonder if you could refer the committee to that data base, or whether, indeed, Mr. Chairman, we could hold the record open for that material? I think it would be of interest.

Mr. Quarles. I would appreciate the chance to do that.

Mr. Maguire. All right. We will leave the record open, Mr. Chairman, if we may, and I ask unanimous consent.

Mr. Waxman. Without objection.

[The information requested was not available to the subcommittee at the time of printing.]

Mr. Maguire. On page 18, Mr. Quarles, you indicate, about two-thirds of the way down the page, that the entire air quality analysis to assure compliance with the PSD increments typically accomplishes, and you say, "but"—and I assume you mean "nothing but consumption of money and time."

Mr. Quarles. "Little" is the word that should be in there. I apologize.

Mr. Maguire. "Little but consumption of money and time," and you base that on the fact that, as you say above, virtually every PSD application has been approved.

Is there no basis for thinking that perhaps some applications might, in fact, never have been submitted based on a calculation that they would not be approved, or is there any possibility of that being the case? In other words, the so-called sentinel effect that we use in thinking about some other issues?

Mr. Quarles. I think that might be forthcoming in future cases. There are two subcomponents. You have the applications that are not submitted because the burden of the regulatory program offsets the benefit of building the facility, so they just give up; and you also have the applications that might not be submitted because they couldn't meet the increment limitation.

Mr. **Maguire**. That is what I was wondering. Is there any reason to believe that there are such or there are not such? I don't know, honestly.

Mr. **Quarles**. There is no reason to believe that there are such that I know of. I think that in some of the huge projects, especially energy-related projects in the West, it becomes possible. It may now be possible to anticipate an impossibility of coming within the increment, particularly for a facility that might be fourth in line in a given small locality, which will perhaps be discouraged from coming in, and particularly in some instances there may be some locational decisions that will be made.

But the principal point I meant to be putting forward here is that the vast majority of the facilities subject to PSD review are very small in reference to the amount of impact they will make on any given increment.

Mr. **Maguire**. Even if only locational decisions are involved here, they are surely important, are they not?

Mr. **Quarles**. They may be; they may not be. I think one of the things that scares me a little about the wisdom of the PSD program is that we will be jumping through all sorts of technical hoops to apply it and involving substantial cost and substantial delay, and if the end result is that one facility out in the desert gets moved over 5 miles so that the hot spot is moved and thereby the possible increment violation is avoided, I am not clear as to what we have really accomplished.

More and more, we are seeing health protection and general air quality protection in different terms from the way it was seen several years ago, with a great deal more concentration emerging on total atmospheric loadings, and the impact of facilities not just half a mile away, but hundreds of miles away. The significance of these immediate locational factors is eliminated when you are looking at the long distance transport phenomena.

Mr. **Maguire**. Why would not both of those be important, particularly if you have people living in an area that is reasonably close in. Even if it is a small number of people, the concentrations close in, I would think, would continue to be important.

Mr. **Quarles**. I can conceive of situations where there would be a significance there, and there might be a value, particularly as Mr. Stockman was suggesting earlier, if you are talking about the increments up at the higher end of the scale, and particularly if you were talking about having a system that would move the locational choice away from population centers rather than toward them. We don't have that, but if you had that, there could be a benefit there in certain cases.

That is not the typical case you have under PSD, and it is not the typical case you will have under PSD. The typical case that is covered by the program doesn't involve a consumption of increments that you are going to move from 8 up to 25. You are going to move from 8 up to 9, and whether you move from 8 to 9 in one spot, or 2 miles across town, in most instances is going to have extremely limited significance to anybody.

Mr. Maguire. That leads me to my next question, which is on page 19 of your statement. You say that the critical point is that facilities with emissions as small as these cause impacts that are barely noticeable in the calculations of increment consumption.

Granting for the moment, for argument sake, you may be right about each individual case, do we not have to be concerned about the aggregate, particularly over time? Isn't that really what PSD is all about?

Mr. Quarles. I think when the PSD system was devised, that stood out clearly as what it was all about. I think at that time nobody understood or appreciated all of the technical difficulties that would be involved in getting there or the frequency with which cases would arise that would have such small impact on getting there.

So, yes, that is the goal.

Mr. Maguire. But if you have a lot of small cases, and you add them up, you may have a medium-sized or even large case at some point.

Mr. Quarles. At some point possibly you would, but if you really are looking toward the question of ultimate goals of this whole program, you have to ask yourself, I think, what is our expectation as to what will happen.

If it turns out over a period of time that finally the increment is used up, and in a broad area it has moved from 8 to 28 so that further growth in that area cannot occur under the PSD limitation, what then will be accomplished? Will that push the growth into an area where the baseline was 40 and fortunately they have only moved up to 55 with perhaps a greater population exposed to those concentrations? If that is the result, that is not an improvement.

Mr. Maguire. Interesting point. I think we need to give some more thought to that.

Do either of the other two panelists have anything to say about the sentinel effect issue that I mentioned a moment ago? Are either of you familiar with cases where applications may not have been made under PSD because in fact it was calculated that it would not be possible to meet the requirements?

Mr. Burns. Mr. Maguire, I have to say that most of those cases will never really surface in print. There are many cases where decisions are made at a lower level before the decisions have to be made on money funding and actual capital authorization by corporations.

You know ahead of time that it is going to be a very difficult permitting situation, you seek an alternative, and the alternative is another location.

Mr. Maguire. Do I construe from what you have just said it is your belief at least that there are in fact instances, although they may not be in print anywhere?

Mr. Burns. Yes, sir.

Mr. Maguire. Where plans have been changed in order to accommodate the law that is on the books?

Mr. Burns. That is correct.

Mr. Maguire. Mr. Ayres, do you have any comment on that?

Mr. Ayres. Yes, Mr. Maguire. I think we are in a kind of ironic sort of situation here. Last fall you heard a lot of testimony about how the permitting requirements were holding up the siting of new sources. Today you have heard that the permitting requirements are unnecessary because everybody gets siting and nothing changes anyway.

I think you can't hold to both of those things very easily simultaneously. I made the point earlier in addition to the sentinel effect that the early stages when the first sources are moving into an area are not the ones when you would expect the air quality increment to have the most effect. You would expect that to occur as the increment fills up and given the size of the increments in classes 2 and 3—and they are quite large, as you remember, because you helped to write them to be that way in order to allow growth——

Mr. Maguire. Let the record show I was in favor of the more simple approach.

Mr. Ayres. In any case there is a good deal of room and so I think it is not surprising that you won't see effects on smaller sources until they begin to accumulate.

Mr. Maguire. Mr. Quarles, did you have a comment?

Mr. Quarles. The point I simply was going to make is that the applications are held up through the regulatory process. Eventually they are approved. So you have both the burden of the delay and with the eventual approval in a lot of the past cases the demonstration that you didn't accomplish anything.

If you point to the cases in the West where a change occurred, at least there is something to be said on the other side of the ledger to produce some benefit as a result of the process. But you clearly have both factors that do function together. They are not inconsistent.

Mr. Maguire. Mr. Burns, I notice that on page 4 of your statement you calculate the time that is involved for monitoring, collection of data, analysis of data, review time, and you come up with a total time of 2½ to 3 years.

Actually, the question is for Mr. Ayres. I wonder if you would comment on Mr. Burns' calculations at that point and give us your views as to whether that is an appropriate period of time.

Mr. Ayres. Mr. Maguire, I think that the way that one should look at these time periods is what is critical, not so much the specific time periods alleged.

The fact that it takes time to do air quality monitoring, for example, need not slow down the decision about whether a project can go forward. I think in many of these cases the issue really is one of phasing, of scheduling, of including these requirements in the process that industry uses in the development of the project so that they don't cause delay.

Mr. Maguire. But if you don't know you are going to be able to go forward with your project, can you really phase it?

Mr. Ayres. For example, if monitoring is the longest period—and I think the testimony here today has suggested it is—that can occur prior to the time you go forward. There is no real reason why potential expansion sites can't be monitored ahead of time so that the baseline data will be available. That kind of monitoring would eliminate most of the delay that is involved if you begin the monitoring only after you decide you are going to build at that given spot.

Mr. **Maguire**. Mr. Chairman, how much time do I have?

Mr. **Waxman**. Mr. Maguire, we have been fairly unstructured.

Mr. **Maguire**. May I have another couple of questions?

Mr. **Waxman**. You may, but we do have another witness after all the other members have completed their questioning. Please keep it down to one or two.

Mr. **Maguire**. Another contention Mr. Burns makes, Mr. Ayres, is that if in fact we have the best available control technology—and I will invite your comment as well as Mr. Quarles since you have indicated your belief that should be the policy—that the ambient monitoring becomes superfluous.

I believe I am making the thrust of your argument rather than quoting it directly, would you comment on that, Mr. Ayres, and then Mr. Burns, I would like your comment on that point.

Mr. **Ayres**. I think once again, whether that is the result or not depends on whether you are nearing complete increment consumption. I think it is no surprise that is what you get when the first requests come in. It may also be that the larger requests that would require more than BACT at one location are not being built there but somewhere else because in that other place BACT is all that is needed.

Mr. **Maguire**. So by definition it is fine up until you get close to the increment ceiling at which point you may not be able to do *x* even with BACT. Is that the argument?

Mr. **Ayres**. Yes. If the State chooses to allocate the increment on a first come, first served basis, which most of them have, that is what happens. Those who come first eat the increment up as quickly as they come. Only toward the end does the increment become a binding thing. States can avoid that if they arrange their programs so that they avoid allowing the first ones in to take as much of the increment.

Mr. **Maguire**. Mr. Burns, clearly there is a difference, isn't there, between a situation where you haven't gotten close to your ceiling and one where you may be bumping up against the ceiling? What does that do to the general point that you have made here that monitoring for ambient air doesn't matter much as long as BACT is in effect?

Mr. **Burns**. Mr. Maguire, you are on your third question without giving me an opportunity to say anything.

Mr. **Maguire**. You have a chance to answer all of them right now.

Mr. **Burns**. I would like to begin with your question on the timing that was a predecessor to the recent question.

I hope that you didn't receive the impression that an industry decides upon a certain location they would like to construct a plant regardless of its emission rate and regardless of its size or complexity and then decides that, OK, the monitoring and the modeling and the investigation of the BACT, the engineering investigation, construction of plant, transportation, labor, and so forth, all proceed simultanteously and miraculously come together at one point at which time everything is authorized.

It isn't really in the real world to expect things to do that.

Mr. MAGUIRE. I would be surprised if that were in fact the way it worked.

Mr. BURNS. This is where we end up with the additional time being required for monitoring, and it is just a fact of the situation that you don't overextend the company as far as preliminary engineering or commitment on purchase of new equipment or even monitoring equipment until you have a better idea of which way you are going.

In the meantime, in some industries—and this isn't particularly true of the pulp and paper industry—you may have lost an opportunity to enter a new market which you could have gotten into much more quickly.

Question No. 2, which concerned best available control technology, and whether in fact it was adequate for the purposes of protection of air quality, specifically our industry is a very diverse industry, we have multiple sources. Many of the sources are large, and many of them are very small.

We have plant locations that are likewise spread across the Nation, some in very rural locations and some in heavily populated northeast.

The PSD regulations apply to all of those equally. Is it then necessary for a company or an emission source within our industry to apply the same stringent controls or monitoring in PSD procedures for a small source that may be located in a very rural area where you know well ahead of time that you really don't have an air pollution problem?

Do you apply the same rules there as you do when you have to construct a larger plant in the northeastern area in particular that maybe you have a problem and you are pretty sure you are beginning to have a problem in the beginning?

In a lot of these cases we feel that the application of the best available control technology system would satisfy the requirements affecting air quality.

We also have supported for a long time—and I think we continue to—the new source performance standards procedure that EPA has in place now. On many cases in our industry if NSPS is a good standard, then it should be as equal to BACT. Those are the only points we are trying to get across with our testimony today.

Mr. MAGUIRE. You might treat PSD differently as you moved up the scale toward the primary/secondary ambient air quality standards than in a rural area far from reaching those levels of pollution?

Mr. BURNS. Certainly as well as the location of a new source is certainly going to have an impact on the requirements.

Mr. MAGUIRE. One final question. Mr. Ayres, would you comment on the point Mr. Quarles makes on page 11 which is that the problem is in PSD where we have created a system that demands orders of magnitude of more accuracy than modeling can give.

Mr. AYRES. I think that the errors in modeling are well known and have been for a long time. We in fact have a system built on modeling which I think has treated models as if they were more accurate than they were. By and large, I think it has given the benefit of inaccuracy to the applicant. There are now some moves to change or rework that system. There are certainly some elements of it which may work the other way as well, and I think those changes should probably be allowed to work their way through.

But I think that in the areas where we demand the most of modeling or the most in our PSD program; namely, the class I areas, the law really does not set us up so that modeling becomes the decision factor. If you recall, in the PSD code in the statute, the modeling results in class I areas become triggers. If they show a violation would occur they load the deck against the source unless it installs a higher level of control but they don't decide the issue. If the model shows that the increments would not be violated, then the opposite is the case—the presumption goes for a permit but it still may be overruled on the basis of a subjective evaluation of air quality values.

So that is the area where I think that inaccuracy is greatest but I think the statute avoids that problem by the way it is written.

Mr. **Waxman**. I must call on Mr. Dannemeyer for questioning at this point.

Mr. **Dannemeyer**. Thank you, Mr. Chairman.

Operating on the premise that the more we tax something, the less we get of it, or conversely, the more the extent we subsidize it the more we get of it, what would be your reaction, since there seems to be a hiatus with respect to this matter of PSD to having a graduated tax on pollution which would begin at a fairly low threshold, but would increase as the amount of pollutants emitted into the atmosphere increased. Through a Government arrangement with industry, we could establish ground rules so that the level of tax would be constant for a 3- or 5-year base period, and so that industry could determine whether it was economically feasible to go ahead. Periodically, because of advances in pollution control technology, the tax would be raised, to make it more difficult to pay the tax than to implement the latest pollution control technology, to achieve maximum cleaning of the environment.

What is your reaction to that?

Mr. **Quarles**. I think if you were offering that as an alternative to the PSD program and would scrap the PSD program as part of the trade, perhaps some of the people in the group I am representing might have some interest in it. I don't know. I am doing everything I can do to encourage my group to seek the most limited and least wrenching types of changes in the program because I think those are the ones that in the end are going to be most acceptable to a wide range of people.

I would personally not vote in favor of that.

Mr. **Dannemeyer**. Mr. Ayres.

Mr. **Ayres**. I think the idea of a tax on pollution is one that has appealed to economists and many environmentalists for a long time. As I have gotten to know it and understand it better, I have felt it has a lot more complications than appear on the surface which may make it less advantageous than some of the advocates of it believe. But I think that it is an idea which should be thought through as an alternative to some regulatory processes. I think it would take a good deal of time to fully explore it and understand it and I think that should be done by the committee as it thinks through this legislation.

Mr. **Dannemeyer**. Mr. Burns.

Mr. **Burns**. Mr. Dannemeyer, I think our viewpoint would be that it is a very simple idea. I think the complications that would arise would probably be enormous before it was over with.

How you assess this tax equitably to every source just seems to me would turn into quite a bag of spaghetti. I am not sure it could be done equitably.

Mr. **Dannemeyer**. I should think that, from the standpoint of the President trying to balance the budget by taxing anything, there is a lot of pollution out there. We all know that.

People will figure out how to avoid a tax. That is the basic idea, and if they figure it out, we get less pollution. What is wrong with it?

Mr. **Burns**. I don't know whether you have seen the IRS code book but it keeps growing and I have a feeling we would soon get ourselves into a terrible position.

Mr. **Dannemeyer**. There are a number of people who are speaking to the IRS Code.

Can you summarize what a company has to do in order to get a permit to construct a new plant in a PSD area?

Mr. **Quarles**. First, the company would have to develop its basic outline of the work that would be required to develop the application. It would need to address first up the monitoring requirements, presumably go into EPA and the State agency and obtain decisions from those regulatory officials as to what monitoring requirement would be necessary. It would then have to shake down the monitoring program, put it into operation, and collect 1 year's monitoring data.

After the data is collected it would have to be analyzed in correlation, as I mentioned earlier, with the meteorological data and in other ways analyzed so that the significance of the data could be evaluated.

That includes computer runs like this [indicating] and other efforts.

At the same time they would have to be going through the BACT review, having developed proposals on the type of pollution control equipment that it would install, for sufficiency of meeting the BACT requirements.

In the event there were other air quality related values, if it impacts a class I area, it would have to also carry out an analysis to meet the supplemental requirements related to the air quality review. It would have to go through all of these steps and in due course hopefully receive the permit and then proceed with construction.

Mr. **Dannemeyer**. In your opinion, what is the effect of the PSD program on new and industrial energy development? How does it affect the planning process of corporate decisionmaking?

Mr. **Quarles**. There is no question it very substantially delays the process of carrying out plans that have been made. One of the points that has been brought out earlier by Mr. Ayres is that in theory, at least, these steps that I just described in response to the question you asked first should be capable of being carried out without causing an extra delay.

As I think Mr. Burns has said and as I would hasten to say, one of the problems is that a company doesn't begin to take these steps until the various factors before it come into focus to suggest that it should undertake the new project.

When those factors come together, it may make a high level corporate decision to undertake the project. It has to bring its internal decisionmaking in its development of the size of the project and the basic design of the project, up to a fairly highly developed stage before it can begin the regulatory process. When it is finally taken into that step, then the time consumed going through the regulatory process all has to be finished before it can begin construction.

So there is a delay factor there that is substantial. That delay factor is less serious where you are talking about huge capital facilities, especially in heavy industry that have a longer lead time in their planning and far more serious if you are talking about smaller modifications of existing plants or other small industrial operations that have a much shorter planning lead time.

So the impacts are significant but the significance varies.

Mr. **Dannemeyer**. How does a company go about determining a baseline? Can you highlight how that is done?

Mr. **Quarles**. I believe that the correct answer to that is that if the calculation of increment consumption is made on the basis of allowable increments, that may consume a substantial amount of the available increment thereby in some cases making it more difficult to proceed with the use of coal.

Mr. **Dannemeyer**. Thank you, Mr. Chairman.

Mr. **Waxman**. Thank you, Mr. Dannemeyer.

Mr. **Maguire**. May I ask one or two?

Mr. **Waxman**. One last question.

Mr. **Maguire**. Thank you.

In thinking about your response to my earlier questions, Mr. Burns, about BACT and PSD, it strikes me that if we followed your advice and eliminated the PSD scheme for areas that are relatively more clean and less polluted, and substituted just the requirement that best available control technology be used, would we not then have a situation in which in all of those areas we could continue even using best available control technology to add to the levels of pollution to the point where we would have those areas at the same level of pollution that the other areas of the country are where the primary and secondary standards are barely being met if at all, and would that concern you if that were in fact the logical extension of what you are proposing given the fact that some experts believe that we are already allowing too much pollution under our primary and secondary standards?

Mr. **Burns**. Mr. Maguire, I think that your point is that we are trying to make the best available control technology be installed whether or not we went through the PSD permitting procedure.

Mr. **Maguire**. If you removed the PSD permitting procedure and you dispense with the increments, logically you are creating a situation—Mr. Quarles, I would like your comment on this as well—in which all the pollution that is permitted under primary and secondary standards is permitted everywhere in the Nation.

Mr. **Burns**. No, sir; I don't think that is the case at all.

Mr. **Maguire**. As a legal matter that would be the situation.

Mr. **Burns**. Because you do away with the PSD permitting program in the form we view it today, does not mean that best available control technology does not represent adequate control. It doesn't really change things. PSD may require installation of best available control technology.

Mr. **Maguire**. This requires a longer conversation.

Mr. Quarles, in reviewing your statement again, I don't see that you are asking that PSD be dispensed with but you are asking that it be simplified.

Mr. **Quarles**. That is correct.

Mr. **Maguire**. You would not agree with Mr. Burns we ought to dispense with the PSD permit request?

Mr. **Quarles**. I am not sure I heard Mr. Burns say that.

Mr. **Maguire**. I thought I heard him say that. Why don't you finish your answer and then we will let him complete his statement.

Mr. **Quarles**. I think I have not made any recommendations as to specific changes that should be made in PSD. I have some thoughts. I have indicated in a tentative way what those thoughts are. In the next 6 months NEDA/CAAP will be attempting to get more specific in the recommendations we would make for change.

Mr. **Maguire**. But at this point you are not inclined to suggest that we junk the PSD?

Mr. **Quarles**. That is correct. I am suggesting that we commit ourselves to retaining the preconstruction review feature of PSD and the BACT feature of PSD and at least certain other elements of the overall area classification and increment scheme, especially more in the class I end of the spectrum.

But if I could speak briefly to the key issue that you have raised in asking what would be the effect if you did eliminate the PSD framework, I think that the answer to that depends a great deal on technology and patterns of economic growth but we do need to recognize that the present regulatory structure leans very heavily on new source construction.

It imposes much more stringent abatement requirements and staggeringly more complicated regulatory review requirements to construct a new facility than it does to continue to operate an old facility.

Yet, the construction of the new facility in many instances will be part of a program in which an older facility is retired, thereby reducing pollution somewhere. Probably the older facility is a more serious pollution problem than the new plant that is built, so there is no data base that I am aware of to suggest that the practical prospect is simply all over the country the levels of pollution are going to rise as economic growth goes forward.

This is something that should be studied more thoroughly but there is at least a sound argument that on balance as to many pollutants in many industrial categories, the general picture will be downward as the existing sources are replaced by more modern and more tightly controlled sources.

If that pattern prevails, then we are never going to get to the higher levels in the increments in many cases. I think what we have heard today is that in large part the justification for the PSD program rests not on the cases coming up in the early years but that the future may be of plants coming up where the increments are close to having been consumed.

Yet, it is not at all clear to me that future will ever arrive if in the meanwhile other offsetting improvements through this Clean Air Act program that was initiated in 1970 begin to produce the same type of general cleanup in air that we have witnessed to a great degree of water.

Mr. MAGUIRE. Of course, that is why we have the legislation, to try to encourage that trend.

Mr. QUARLES. That is exactly the goal, and if that is achieved, the benefits of PSD would probably become moot.

Mr. MAGUIRE. Mr. Burns, did you want to straighten out the matter that I characterized apparently incorrectly a moment ago?

Mr. BURNS. No, sir, I don't have anything to straighten out. It wasn't my intention—if I did say dump PSD, that wasn't the intention.

Mr. MAGUIRE. But I think that is what your statement says. It says BACT is sufficient; we don't need the PSD permitting process, because we accomplish the same thing by having the BACT in place. I think that is what your statement said.

The conclusion of that would be, I think, logically that you are saying that we don't need the PSD permitting process. Maybe that is not what you are saying, but I would like to know what you are saying.

Mr. BURNS. OK. I think I gave you some examples there that showed, in at least our estimation, where PSD, the entire procedure for going through PSD, as we understand it today, is not going to be a productive step, because the same control equipment would have been installed——

Mr. MAGUIRE. OK. I understand that point. But the question is: Do you then want to get rid of PSD, or do you think there are reasons to retain it?

Mr. BURNS. I think in those situations it is perfectly logical to save the time and money and staff requirements that would be expected to go through a PSD permitting procedure when the impact on the air quality or the improvement on air quality is going to be negligible.

Mr. MAGUIRE. I clearly have run out of time, but I would like you to tell me afterward how we know in advance which cases fit in which category.

Thank you very much.

Mr. WAXMAN. One last question, Mr. Quarles.

Mr. QUARLES. Here I have my papers in a nice neat stack ready to leave. Yes, sir.

Mr. WAXMAN. We discussed earlier today the concept of the bubble, and we heard the suggestion that new sources ought not to have the strict requirement placed on them for control technology, because we really are talking about a tradeoff.

Under your theory of simplified or revised PSD, how would you work out a bubble concept, or would one assume that a bubble concept under your theory would always require the best available control technology to be applied on new sources even though the tradeoff under that theory could otherwise have been achieved by a stricter emission limitation on the existing facility?

Mr. QUARLES. Can I take that question away with me, and think real hard about it, and come back in February and tell you all my answer?

Mr. WAXMAN. If you have any ideas before, we will welcome them. Otherwise, we will look forward to you thinking about it, and discussing it further with you next year.

Mr. QUARLES. Thank you.

Mr. WAXMAN. Thank you very much, and let me thank Mr. Ayres and Mr. Burns for your contribution today, and we look forward to working with all of you in our efforts to make the Clean Air Act live up to its goals.

Thank you.

Let me now call forward Mr. David G. Hawkins, Assistant Administrator for Air, Noise, and Radiation, Environmental Protection Agency, accompanied by Walter C. Barber, Jr., Deputy Assistant Administrator for Air Quality Planning and Standards, EPA.

STATEMENT OF DAVID G. HAWKINS, ASSISTANT ADMINISTRATOR, AIR, NOISE, AND RADIATION, ENVIRONMENTAL PROTECTION AGENCY, ACCOMPANIED BY WALTER C. BARBER, JR., DEPUTY ASSISTANT ADMINISTRATOR, AIR QUALITY PLANNING AND STANDARDS; AND DEBORAH TAYLOR, OFFICE OF PLANNING AND EVALUATION

Mr. HAWKINS. Thank you, Mr. Chairman. Also, on my right is Deborah Taylor, of our Office of Planning and Evaluation. Mr. Barber is on my left, as is evident.

My statement is short, and, therefore, rather than trying to summarize it, I would just like to read through it.

When this was written, it started off saying I welcome the opportunity to meet with you this morning. I still welcome the opportunity to meet with you, and today we will be talking about the alternative emission reduction policy, commonly known as the bubble policy. That represents a change in the traditional regulatory approach. Under this policy, facilities can obtain financial savings by employing more cost-effective mixes of control techniques than are allowed by some current process-by-process regulations.

The facilities are able to use the bubble as long as the total environmental control is not reduced. Properly applied, this alternative approach should promote greater pollution control cost savings and increased technological innovation.

As you know, the Clean Air Act requires the development of State implementation plans—SIP's—and source-specific compliance schedules to achieve national ambient air quality standards—NAAQS. In developing those plans and schedules, States normally set specific emission limits for each particular emission source within a facility.

The bubble policy gives the industrial source an opportunity to come forward with an alternative strategy to relax high-cost pollution controls in exchange for increases in control where abatement is less expensive. I might add that can occur in either of two ways. It can occur with regulations already on the books in a retrospective way, looking back and changing the recipe, but in terms of new regulations that occur during that regulatory development process; that is, the agency can come forward with one kind of approach and industry can say if that is your objective, here is the way to do it at lesser cost as far as our particular facility, and then the first reg that gets put on the books reflects that policy.

Under the bubble concept, a facility with multiple emission sources—stacks, vents, ports, et cetera—each of which is subject to specific emission limitation requirements under an approved SIP, may propose to meet the applicable SIP's total emission control requirements for a given pollutant by employing a different mix of controls than that mandated by existing or proposed regulations. Put another way, we would view the plant as if it were contained within an imaginary bubble. The facility may control specific emission points within the bubble to any degree it chooses as long as the combined emissions from the single bubble meet overall SIP air quality requirements for the whole plant.

In practice, bubble applications will be integrated into the present SIP process to insure that the States and EPA consider alternative control strategies in an open and orderly fashion and verify that air quality will not be adversely affected.

To use a powerplant as an example, a utility could propose an alternative approach for the removal of sulfur emissions from four boiler stacks at one of its powerplants. Instead of emitting 30 tons per year from each stack—which would require use of flue gas desulfurization or scrubber control equipment on each stack—the utility might offer to emit 25 tons a year from 3 of the stacks and 45 from the fourth. They could do this with increased scrubbing on three stacks and the use of low-sulfur coal without a scrubber in the burner vented by the fourth.

In order to use this bubble approach which allows a much cheaper way to control emissions than the four-scrubber approach mandated by the current plan, the utility would have to show that there would be no change in the area's ambient air quality. If the State agency and EPA agree that the air quality will remain the same, the State then writes a new set of emissions limits to reflect the alternative mix of controls.

The potential financial savings from use of the alternative approach will provide, we think, plant managers with an economic incentive to develop innovative control strategies. Preliminary estimates indicate that under the bubble electric utilities could save up to one-third of their control costs. Other industries, such as chemical manufacturing, might be able to save even more. This is, of course, a goal we fully support.

In offering this option, however, it is of paramount importance that possibilities of degraded air quality, weakened enforcement, or interference with other pollution control requirements under the Clean Air Act be prevented. To avoid these problems, this alternative approach is carefully guided by six general considerations:

First, a source seeking to bubble must already be subject to an EPA-approved plan;

Second, trades must be between the same criteria pollutants; that is, particulates for particulates and hydrocarbons for hydrocarbons;

Third, hazardous emissions may not increase under a bubble;

Fourth, open dust trades are allowed only in certain limited circumstances;

Fifth, extension of compliance schedules with a bubble will be allowed only if the extension would have been permissible without the bubble; and,

Finally, a plant must continue to meet its existing plan requirements until EPA approves the bubble as a SIP revision.

With these considerations in mind, sources are free to begin looking for the least expensive mix of controls. We recognize that, compared with any Government agency, plant managers have far more information about their plants and thus greater opportunity and incentive to minimize the cost of pollution control and, accordingly, this policy encourages industry to take the initiative to reduce air pollution control costs for existing plants.

To insure its success, we have not relied simply on the final Federal Register notice. We have, in addition, undertaken an aggressive two-phased effort directed at industry: first, to provide a basic understanding of the policy and, second, to provide specific technical information and feedback to industries interested in its application to their particular situations.

We are working closely with the States and, to reach industry, we have participated in industry seminars, contributed to trade journals, and made presentations at company meetings. EPA management and technical personnel from all 10 regions have been thoroughly briefed to make certain that the message gets out to industry promptly and clearly.

In addition, we have focused on the pollution control industry to insure that it understands the parameters and requirements of the bubble and is able to help other industry assess the best way to take advantage of the policy.

We believe we have laid a good foundation for the success of this program. To date, we, or the State agencies, have received indications of strong interest from over 30 companies, and information requests from a number of others. As more understand the policy, its application and potential economic benefits, we anticipate widespread acceptance and interest in implementing this alternative.

The bubble policy, a product of regulatory reform, is an important part of a larger incentive system designed by EPA to encourage businesses to reduce emissions and to use those reductions to meet their own financial objectives. We call the system "controlled trading" because it involves trade-offs under explicit controls.

It began with the offset policy at the end of 1976, which is a tool for reducing emissions from existing sources in nonattainment areas to make "room" for construction of new facilities. The bubble policy expands on the trading concept introduced in the offset policy by providing incentives to reduce the cost of pollution control at existing facilities.

The next tool will be banking, which allows plants to obtain a credit for emission reductions that go beyond current cleanup requirements.

Regulatory reform assumes as a basic fact that much of Federal regulation serves the public well. Through improvements to the regulatory process, statutory goals can be achieved with a minimum of economic and other costs. Keeping the cost of regulation down will promote compliance and reduce the level of industry resistance to new regulations. It is this philosophy which has led EPA to develop economic incentive policies such as the bubble.

This concludes my statement, and I would be happy to answer questions.

Mr. **Waxman**. Thank you very much, Mr. Hawkins.

Repeatedly we hear that the Clean Air Act is too inflexible and rigid. Yet EPA's air program continues to lead all the regulating agencies in moving toward the concept like the bubble and marketplace offsets, and I wanted to make this comment because it may be an apparent contradiction, but I think EPA is to be congratulated for trying to bring about ways of accomplishing regulation that would lead to the least amount of inefficiency.

Does it make sense to bubble new sources? We heard testimony this morning that that restriction on use of the bubble that treats new sources differently creates an injustice. What is your reaction to that?

Mr. **Hawkins**. The bubble applies to the regulatory requirements that are in place under State and local air pollution agencies' laws as well as the Federal requirements, and I guess you have to look at the ultimate source of those regulations.

In my view, there are two. There are two reasons why pollution control regulations are imposed, or two methods. There is one basic reason, which is to insure acceptable level of environmental quality. There are two basic methods that are employed. One is the so-called ambient or air quality management-based method, the method supported by the ambient air quality standards or the PSD increment. It involves identifying an air resource which is allowed to be used, and the way you decide how much of it is going to be used is, first of all, you set what that acceptable air resource is, based on review of health documents, based on review of documents of damage to crops, damage to forests, indicators of problems in the real world that people have studied and done research papers on and scientists agree and say something that regulatory agencies can use.

That is a long process and has taken a while to be able to respond effectively to the mandate of Congress that we review those standards. It is a difficult process.

Once you set the standards, you engage in a second step, which is trying to relate what a particular source will do in terms of using up the amount of air resource that you said may be used.

That is done through modeling, which you heard quite a bit of criticism of, and some of that criticism is well founded. Modeling is complicated; it does have its uncertainties.

And then you adopt the emission limit. The final thing you do, if it is an existing source, is have an enforcement program which then tries to get the sources to actually agree to comply and meet those emission limits that were imposed on them through the process. That is a long and involved process, also.

You may recall that just last year United States Steel signed a consent agreement for a number of its facilities with emission limits that were set in some cases as long as a decade ago. Just this morning in the Wall Street Journal the United States Steel representatives were quoted as saying they might not be able to meet that consent agreement because of problems with the economy. So it is a long, involved process.

This is a long and involved answer, too. But that is one method, the ambient or air quality management-based approach, and we have a lot of rules on the books that are designed to meet that need.

There is another method in the Clean Air Act which is a technology-based method, which applies to new sources. It says we are not sure what the future is going to look like 50 years from today. We can look back 50 years and see what the benefits of having good controls, put on sources in places like Pittsburgh, Los Angeles, places affected by smelters, might have been if we had made that decision. What would today look like if 50 years ago we made those kinds of technology determinations, and are we smart enough to know what the future is going to look like and whether it is good enough 50 years from now, based on all of these ambient techniques?

The benefit of the technology-based approach is that it is simple. And the benefit as a supplement to the air quality management-based approach is that you have a combination of a fairly complicated program that allows for very close trade-offs and very close cutting against the line to figure out the maximum amount of pollution, if you will, that you can fit into an area, while still protecting these current problems that we know a lot about in terms of health, and ecological system benefits, and then supplemented by a program that is devoted to new sources. So, as Mr. Quarles testified, as those sources replace existing sources, that becomes, in effect, the baseline for the amount of environmental insult that is associated with whatever level of economic activity we seek as a country.

I happen to think the combination of the two programs is very effective, and I think that applying the bubble concept to the new source would, in effect, mix those two programs in a way that they shouldn't be mixed.

Mr. **Waxman**. You have been universally applauded for the adoption of the bubble concept. Has the agency performed an economic analysis demonstrating that the bubble will increase innovation?

Mr. **Hawkins**. We have not done a specific economic analysis or specific analysis of how much innovation may be spurred by this. I think it is our assumption that the incentive is presented, though.

Ms. **Taylor**. I think innovation, almost by definition, is something you couldn't do a study on and measure at this point, since innovation, by definition, is what doesn't exist today, but will exist tomorrow if you give industry certain incentives.

We have, on the other hand, based on some of the bubble applications that are in preparation—we are seeing the adoption of control techniques that are more stringent than would have otherwise been required by law, and companies giving testimony to the

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fact that they would not have chosen to use those control approaches had they been required to adopt on every point within their plant specifically what was required under their current regulations.

So we do believe innovation—our earlier experience is showing that innovation will be stimulated, the use of innovation, and hopefully in the long run the development of new innovative techniques will be stimulated by the bubble concept, but it is premature to try to project in the future how this policy alone will affect the rate of innovation through industry as a whole.

Mr. WAXMAN. Do you see it as a good long-term way to approach the problems of air deterioration?

Mr. HAWKINS. Well, I think allowing sources to identify ways that they can more effectively meet the obligations that have been imposed is a very good idea, and I think that you have concerns when there is a possible delay in enforcement of existing requirements that is associated with it, and that is why we tried to design in that safeguard. Just by way of response to one of the earlier points of testimony, one of the witnesses—I think it was Mr. Carpenter—pointed out that industry viewed it as a problem that they had to comply with the requirements of current law while their applications for alternative strategies were being evaluated.

I think it is correct that the bubble policy or any regulatory reform policy is less useful to a source that is in compliance with the law than it is to a source that isn't. I think that is an appropriate distinction. Sources which are complying promptly ought to be rewarded; sources which are not, should not.

Mr. WAXMAN. When will the agency complete the PSD rulemaking, and would you care to respond to any of the points raised by Mr. Quarles and Mr. Ayres, or any of the other panelists?

Mr. HAWKINS. The rulemaking, as you noted, is not yet complete. We hope it will be within a matter of weeks, and I hope when I say matter of weeks, I am talking about a number of weeks I can count on one hand, using my fingers only once, but that is our hope and expectation.

As far as responding, I guess a general response is each of the points raised by Mr. Quarles was a point that the agency has been very aware of in developing its regulations, and has recognized as problems which need to be addressed.

I am confident that our final rule will address these in a way that will make the program workable. And I think that a lot of the complexity that was indicated in Mr. Quarles' testimony is there really more as a matter of theoretical analysis than actual real-world problems associated with the program, and I think that will be even more the case when we do finish our rulemaking.

Mr. WAXMAN. Thank you very much.

Mr. Dannemeyer?

Mr. DANNEMEYER. Mr. Hawkins, why can the bubble be applied only within the same control technique guidelines in an area that requires extension for compliance until 1987 for ozone?

Mr. HAWKINS. I will try to explain that to you, Mr. Dannemeyer. The control technique guidelines are the agency's way of implementing on a phased basis the requirement of the Clean Air Act that reasonably available controls be imposed on all existing sources in areas that are not attaining the health-related standards. The agency, in meeting with State and local officials after the passage of the 1977 amendments, came to the conclusion that, say what we might, unless we gave the State and local officials fairly detailed technical guidance on regulations, that we would not get regulations for all categories of, in this case hydrocarbons. We have a great number of ozone noncontainment areas, and hydrocarbons contribute to those.

We adopted a schedule of regulations paced by our issuance of these control technique guidelines. The first batch of those went out in 1978, and an additional batch of these regulatory guidelines will go out. If we allowed trading between different sets of guidelines, we would be interfering with the congressional objective of having reasonable controls on each of the stationary sources categories, recognizing that these areas are areas that are not meeting the health-related standards and therefore are supposed to be using requirements that reflect reasonable control on all sources.

To say a reasonable control on one source category could be avoided by putting somewhat more controls on another source, leads one to the conclusion, here is this source category, and is this area an area where the health standards are being met, and the answer is no. Here is a source category that isn't being regulated. Why not? They imposed more controls on this other source. The colloquy goes on, but it still doesn't answer the question why are you not putting reasonable controls on the first source if the area isn't meeting health-related standards.

Mr. **Dannemeyer**. Mr. Carpenter, would you like to respond to the question? Did you hear it, sir?

Mr. **Carpenter**. Yes, I think so.

The point I was making this morning was that we don't need—a State, first of all, has a plan showing reasonable further progress toward attainment and all we are saying is that doesn't make any difference as to whether you are proving attainment in 1982 or 1984, but under EPA's regulations any bubble application for something—you cannot go and use the control requirements on into the future. In other words, even though I wouldn't be using that control to reach attainment in the future, I cannot go and take that as my alternative emission control.

And it sounds like what Mr. Hawkins is referring to is we shouldn't take alternative controls—he just told us that the agency was saying this is something we were doing to come up with the least cost method and now he is saying we can't take those alternate controls, and that confuses me somewhat.

Mr. **Hawkins**. I can try to help elucidate this. The area where the bubble concept has its most greatest ease of application is in a situation where you already have reached your desired level of environmental quality, a place where the air quality is where it should be, and the regulatory program is stable and mature and in place.

Everyone agrees, then, that it makes sense to continue searching for the most efficient alternatives to that stable regulatory program—cost efficiencies.

The problem with a lot of our areas is that they are not yet at that point of acceptable levels of air quality and don't have in place a complete set of regulations which will get them to that acceptable level of air quality.

So what you have, we know we are going to be putting additional regulations on the books in those areas until we get pollution levels today reduced to a level where we can protect public health standards, and in that circumstance you have to ask yourself the question whether you can tolerate a relaxation of control requirements on some sources in return for slightly more than what has been put on the books on other sources if you are not yet in a position where you are going to demonstrate attainment.

The general policy under the bubble policy says you may not do that. If you have a nonattainment area, you may not use the bubble—nonattainment area being an area not yet achieving the health protection standards.

We have made exception to that with respect to hydrocarbon controls. In the hydrocarbon control area we have said we have these individual control regulations which apply to different categories of sources. In the first set of regulations we put out regulations covering 11 industrial categories of sources. By industrial category I mean something like automotive assembly plants would be an industrial category.

A coil coder or a paper coder would be another industrial category. We put out these industrial categories and we recognized that in the near-term that is going to be the level of emission control somebody is going to get out of that industrial category.

So we have made an exception to our policy about not being able to trade in dirtier areas. We have said within that category you may trade because if you come up with a better record of achieving that same level of control out of that automobile assembly plant, you are permitted to do so.

However, if what you want to do is not control the plant at all and instead work on the solar industrial source category, we say that is not consistent with the requirement that automobile assembly plants as well as other sources have reasonably available controls put on them if they are in dirtier areas. That is what the statute says.

Mr. **Dannemeyer**. Thank you, Mr. Chairman.

Mr. **Maguire** [presiding]. Mr. Dannemeyer, while Mr. Carpenter is still here I believe it was Mr. Carpenter earlier who advocated that the States be permitted to make these determinations and that the Federal Government not participate in the process of revising and improving the stated limitation. Would you comment?

Mr. **Hawkins**. Certainly. The EPA has no objection in principle to a system other than the State implementation revision process and I think that is evidenced by the fact in the offset policy we permit a system other than the planned revision process.

Our concern has to do with making the regulations which are adopted under the bubble policy enforceable as a matter of Federal law and as a matter of a third party citizen suit to be equally enforceable so you do not get two sets of law applying because under the Clean Air Act existing regulations which might be renegotiated under a bubble, are part of the State implementation plan. It has been submitted to EPA, approved by EPA and they are as enforceable in Federal court by citizen organizations and others

If we change those in a bubble negotiation and come up with another set of regulations, those regulations must be equally enforceable. Since there is no permit involved necessarily with the bubble transaction we do not have the handle we had in the offset provisions. If we had some handle and some mechanism other than the SIP provision which would allow us to say that these renegotiated limits are just as enforceable in Federal court as the old SIP regulations, fine.

Our lawyers advised us we didn't have such a mechanism.

Mr. MAGUIRE. That really is the point, isn't it? I think Mr. Carpenter was mainly making his case on the issue of delay.

Mr. CARPENTER. No. That is not true. The delay was with respect to the Alabama Power bubble or new source permitting, but within this case what we are saying is we don't see any difference between new source permitting for construction and essentially what is permitting for operation under an existing plant.

Under a new source program EPA has adopted guidelines for what must be in a new source review program for a State to pick it up. The State adopts those procedures within its SIP and then enforces a program without a constant Federal intervention in that every single permit that comes along——

Mr. MAGUIRE. Let me understand the basis for your point. First of all, on page 4 you are talking about the process takes at least 12 months, requires enormous amounts of paper work and so forth. I thought the main drift was delay. You say you would be opposed to it even if there were no delays?

Mr. CARPENTER. I think the States ought to be able to manage their own programs but I don't see how we do anything that goes where we have to change the State regulations and the Federal authorization of those every time that can help but have those kinds of delays in the system.

Mr. MAGUIRE. So delay is the key point?

Mr. CARPENTER. Yes.

Mr. MAGUIRE. You are not addressing yourself to legal questions or even philosophical questions about State or Federal Government. You are really saying that by having the Federal Government involved, there is more delay?

Mr. CARPENTER. We believe there is legal authority within the act and there is a difference between our lawyers and EPA's, and that is in litigation right now.

Mr. MAGUIRE. That is the question I wanted to ask Mr. Hawkins, if there were theoretically a way to say in advance to a State if you want to modify your implementation plan in line with bubble negotiations which you conduct and which are in conformity with guidelines, everybody recognizes at the outset that the Federal Government will have the same enforcement powers with respect to that revision of the SIP that it has with respect to any other aspect of the SIP.

Would that solve your problem? And if it would, then the question is do you need some legal authority from the Congress to set up that state of affairs or is it a matter that has to be resolved in the courts and how do you account for the fact that his lawyer has a different reading of the current law than yours?

Mr. **Carpenter**. Lawyers do reach different opinions. A lawyer's job is to counsel his client and when you are counseling you give conservative views that reflect your client's interests. You want to protect your client so it is natural——

Mr. **Maguire**. Presumably the Federal Government's interest here is in having the most efficient application of clean air laws that we can devise, not making sure that the Federal Government reviews something that might not otherwise have to be reviewed?

Mr. **Carpenter**. Right. The policy interest is in having a fairly secure legal basis for concluding that that changed regulation is federally enforceable. Our lawyers feel that the risks are substantial, that such a conclusion might not be legally sustained. I think CMA lawyers probably feel those risks are bearable.

Mr. **Maguire**. Mr. Hawkins, did you hear the discussion with Mr. Mullis this morning about the case which he cited in which he and his company determined that it would be more economically advantageous to go ahead and use three separate boilers, each of which would fall outside the requirements for the installation of scrubbers rather than the one 550 million Btu heat input boiler which would have required scrubbers?

Mr. **Hawkins**. I did hear that.

Mr. **Maguire**. Do you have any comment on that situation either in general or with respect to that specific case?

Mr. **Hawkins**. Yes. I guess my first comment is that basically he was describing a problem associated with the fact that that regulation is not universal in its coverage. It exempts sources below a certain size. His company chose to take advantage of that exemption by building a facility which was small enough so it would not be covered by the regulation.

One remedy is to have a smaller threshold or a larger threshold but a different threshold; but that might present some other firm with a similar problem.

Mr. **Maguire**. Do you think the 250 threshold makes sense and if so, why?

Mr. **Hawkins**. The agency thought it made sense when it set it back in 1971 but was principally associated with an analysis that dealt with utility boilers and not industrial boilers. We will have an opportunity to review that threshold in the industrial boiler new source performance standard which is under development right now.

Mr. **Maguire**. Would a threshold tend to be higher or lower for industrial than for a utility?

Mr. **Hawkins**. It would tend to be lower.

It could conceivably solve that specific problem Mr. Mullis was talking about prospectively by not making it more economical to build those boilers because they might also be covered.

Mr. **Maguire**. He also appeared to have a situation in which originally they decided to go ahead with the three small ones because the big one would be within the requirements for the new source performance standards. They built the big one, anyway, in the hopes something could be worked out at which point it became an existing source, at which point I gather he and his lawyers tried to define an existing source as a group of facilities rather than a single facility, took the matter to court and lost.

This history of this particular example, it seems to me, is replete with a variety of ironies, if not instructions.

Do you want to make any further comments?

Mr. **Hawkins.** I think the court case he was referring to was a case involving a smelter company and not his own company but an equally binding precedent of law.

I guess I am rather surprised by his inability to find conforming fuel supplies either low sulfur coal or oil. I guess I share Dr. Carter's surprise that he is not able to locate sources of conforming fuel. The limit we are talking about here is 1.2 pounds per million Btu limit. There are other sources in his part of the country that don't seem to have particularly enormous trouble meeting that limit.

Mr. **Maguire.** Thank you very much for your testimony.

The subcommittee is adjourned.

[The following statements were received for the record:]

STATEMENT OF SHELL OIL COMPANY

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE
SUBCOMMITTEE ON HEALTH AND THE ENVIRONMENT

OVERSIGHT HEARING ON
CLEAN AIR ACT

WASHINGTON, D.C.
JUNE 16, 1980

We welcome this chance to comment on the tangle of regulations and many problems caused by the Clean Air Act and its impact on our thermal recovery operations in Kern County, California.

Over the past 20 years, Shell has been a leader in thermal recovery. We have made large investments, both in money and manpower, in this enhanced recovery method. Recently, we purchased Belridge Oil Company. A major contributing factor in this acquisition was our estimate of its thermal oil potential.

Shell was the first to demonstrate that a steam soak process could be used commercially on any of the heavy oil reservoirs in the United States. This demonstration was initiated in Yorba Linda, California in 1960 and provided the impetus for commercialization of steam recovery processes in the United States.

Since that time, Shell has contributed significantly to the advancement of thermal recovery technology and has been a leader in thermal recovery as evidenced by the following:

- Have made significant contributions to the understanding of Thermal Recovery Processes through an aggressive research effort at our E&P Research Center in Houston.
- Have obtained a large number of patents pertaining to steam processes.
- Have presented a large number of technical papers pertaining to steam processes.

- Current incremental oil production by steam recovery methods is 85,000 barrels per day, highest in the industry and about 30% of the industry total incremental oil production by steam recovery methods in the U.S.
- Mt. Poso in 1969 produced 1,560 barrels of oil per day (16° API) plus 116,000 barrels of water per day (99% cut). We pioneered a steam drive process in 1970-71 and now production is 22,000 barrels of oil per day and increasing. Recovery Efficiency went from 38% (primary) to an estimated 66% as a result of the steam drive.

We expect to invest about 1 billion dollars in thermal projects over the next 10 - 11 years. Our production should increase to a peak of 130,000 barrels per day in 1985. Given economic and environmental climates conducive to thermal oil development, plus new technology, we would forecast a possible 150,000 barrels per day thermal oil production by 1990.

To achieve these production levels, Shell will need to install about 85 more 50-million Btu per hour steam generators. If we are unable to obtain the necessary permits, our production rate would be 27,000 to 40,000 barrels per day less over the 1985-90 period, and would result in about 77 million barrels of heavy oil not being produced by 1990. In today's terms, that volume of oil produced here at home (by only one producer) would mean almost $3 billion reduction in payments to OPEC.

Since 1974, problems in obtaining air emission permits have frustrated and delayed our development of thermal recovery projects. Some understanding of how these problems have impacted us may be useful if we are to avoid similar roadblocks in the future.

During 1974 and 1975, Belridge applied for permits covering 15 steam generators and Shell applied for 26 steam generators. Belridge obtained their 15 permits February 28, 1978. Shell obtained permits for 8 generators on March 29, 1979 and for 6 generators on September 7, 1979. Projects involving the other 12 had been delayed or cancelled due to various external problems. Subsequently, an additional 15 applications were submitted by Belridge and 6 by Shell during June, 1979. Approval of these permits appears to be hung up on how to accomplish particulate offsets by size distribution.

Permitting problems in the 74-79 period resulted in delays of about 3 years for Belridge projects and up to 4 years for Shell's projects. Current projects in the 1979 applications have been delayed about 6 months already, and we still do not have permits.

So many things happened during the 3 to 4 year interval required to obtain permits in the 74-79 period, that it is almost impossible to reconstruct the details. However, in general terms, the problems resulted from, or were compounded by, evolving permitting requirements. The requirements changed so fast that the Kern County Air Pollution Control District could not process an application and issue a permit before new requirements had been imposed. These requirements stem from the Clean Air Act.

Starting in 1974, we were required to make an Air Quality Impact Assessment to show the effect of our proposed installations on air quality. This required modeling. At about this time, there was developing throughout our industry a very broad interest in steam flooding. In fact, as many as 200 operators on the west side of Kern County indicated an interest in installing steam generators. Eventually, it became necessary to model the impact of all potential installations that were being contemplated for the next 3-year period. When all of these possible installations were modeled (early 1977), some SO_2 hot spots were indicated. This necessitated SO_2 scrubbing and offsets which changed the economics of projects, causing some projects to be altered or abandoned. This changing project mix required remodeling.

In January, 1977, a new rule to control hydrocarbons necessitated causing gas vapor recovery systems and hydrocarbon offsets. This again required new engineering evaluations and revisions to our applications.

The Clean Air Act Amendments of 1977 added additional complications. Any permits issued by the APCD after 2/28/78, would be subject to Best Available Control Technology (BACT) for all criteria pollutants and would be subject to PSD review by EPA. This meant BACT was required for NO_x. Until the State Implementation Plan is approved, all permits after mid-1979 must have full EPA approval. Accordingly, the APCD required modeling for NO_x. When this modeling indicated potential violations of the State NO_x standard, greater NO_x control became necessary.

Particulate offsets have been required on a mass for mass basis since early in this period, but now we are facing a new requirement to offset particulates size for size.

We understand that the Clean Air Act will be open for Amendments before the next Congress. Since accelerated heavy oil production from Kern County is so vital to the nation's energy needs and since existing overly stringent Clean Air Act restrictions are undermining this effort, we urge that the highest priority be given to constructive changes in the Act which will permit development of heavy oil to move forward.

ncasi
NATIONAL COUNCIL OF THE PAPER INDUSTRY FOR AIR AND STREAM IMPROVEMENT, INC.
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Russell O. Blosser
Technical Director
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SPECIAL REPORT 80-05 March 21, 1980

EXPERIENCE WITH OBTAINING AIR QUALITY DISCHARGE PERMITS FOR NEW SOURCES AFTER THE 1977 CLEAN AIR ACT AMENDMENTS

Obtaining an air quality discharge permit has become a critical element in the planning of new forest product industry facilities and modification or expansion of existing facilities. The attached special report was prepared by Dr. John E. Pinkerton, Research Meteorologist, in an effort to determine the effect of air quality permitting procedures which were new elements as a result of the Clean Air Act Amendments of 1977, on the forest products industry. Specific conclusions regarding the impact of the 1977 Clean Air Act Amendments were difficult to draw as a result of the transition between the older and the new permitting policies.

The fourteen case histories reviewed for this study did indicate a wide experience in time required for gaining the granting authorities' review and approval of permit applications. These ranged from three to seventeen months, with a median of eight months. The most significant problem areas encountered in the review process included (a) the BACT determination, (b) EPA-state coordination, (c) definition of the baseline determination, (d) uncertainty over PSD increment consumption, and (e) controversy over air quality monitoring procedures. Since ambient air quality monitoring was performed in only two cases in the fourteen case studies examined, the time interval for obtaining an air quality discharge permit under the current provisions of the 1977 Clean Air Act Amendments is not adequately represented in this study. Currently required ambient air quality monitoring programs will require an additional eighteen to twenty-four month period prior to submission of the PSD permit application. This assumes that the program can be carried out without any major interruptions, flaws in the data collection activity, and acceptance of the monitoring program by the permitting agency. The complete time span from initiation of the monitoring through the agency review and permitting time observed in this study would be on the order of thirty months. Considering that some cases and situations will exceed this median value suggests that a review of more recent experience be carried out to determine the actual time lapse experience in the permitting exercise. This activity is planned for late 1980.

Your comments and questions on the contents of this special report are solicited.

Yours very truly,

Russell O. Blosser
Technical Director

ROB:gs
Attach.

EXPERIENCE WITH OBTAINING AIR QUALITY DISCHARGE PERMITS FOR NEW SOURCES AFTER THE 1977 CLEAN AIR ACT AMENDMENTS

I SUMMARY

Obtaining an air quality discharge permit has become a critical element in the planning of new forest product industry facilities and modification or expansion of existing facilities. This report summarizes the experience of the forest products industry in obtaining air quality discharge permits over roughly a two year period following the passage of the 1977 Clean Air Act Amendments. Fourteen case histories were made available to the National Council staff; twelve dealing with PSD permits and two with nonattainment area permits. These fourteen case histories revealed a very wide range of experiences from which it is difficult to draw overall conclusions about the effect of air quality permitting procedures on the forest products industry. The broad range of experiences can be attributed to (a) the constantly changing permitting requirements in the two year period subsequent to the 1977 Amendments, (b) policy and procedural differences among various EPA regional offices and state permitting agencies, and, to a much lesser extent, (c) the diverse nature of forest product industry emission sources needing air quality discharge permits.

One integral part of obtaining an air quality discharge permit is the permit granting authority's review and approval of the permit application. The fourteen case histories indicated that this activity took a median of eight months, but ranged from a minimum of three months to a maximum in excess of seventeen months. The most significant problem area encountered in the review process was the BACT determination. Other problem areas mentioned included lack of EPA-state coordination, definition of baseline determination, uncertainty over PSD increment consumption, and controversy over air quality modelling procedures. Ambient air quality monitoring was performed in only two cases.

Although ambient air quality monitoring experience was limited in the 1977-1979 time frame, it is expected that monitoring will become the most time consuming and expensive part of obtaining air quality discharge permits in the future. The December 1979 Alabama Power court decision seems to leave little doubt that ambient monitoring for one or more pollutants will be required as part of each PSD application. Considering that an ambient monitoring program takes three to six months to implement, that a one year data collection period is necessary, and that data analysis and dispersion modelling require an additional three to six months, an ambient monitoring program will necessitate an additional eighteen to twenty-four month period prior to submission of the PSD permit application. Coupled with a median agency permit review time of eight months, the total time required to obtain a PSD permit, which must be issued before actual construction can begin, would be on the order of thirty months or so. The impact of a thirty month delay on detailed engineering, final design, and construction of a facility or modification is very significant and may be cause for not even starting a particular project.

Because the forest products industry experience with ambient monitoring programs in the 1977-1979 time frame was limited, and the air quality permitting requirements were (and still are) in a state of flux, it is expected that this report will be updated at the end of 1980 to reflect more recent industry experience.

II INTRODUCTION

New industrial emission sources and existing sources seeking to increase emissions of various pollutants have been subject to an increasing number of requirements related to air quality that must be met before construction can begin. Originally these requirements were largely limited to obtaining an emissions permit from a state agency. Later, demonstrating compliance with New Source Performance Standards (NSPS) and the National Ambient Air Quality Standards (NAAQS) became part of the permitting process. By late 1974, the concept of preventing significant deterioration of air quality (PSD) became established by a series of court decisions and EPA had formulated an additional new permitting requirement for major new sources or modifications of existing sources that planned to locate, or whose emissions would impact, areas where the air quality was better than the NAAQS ("clean air areas").

The 1977 Clean Air Act Amendments and subsequent implementing EPA regulations significantly increased the requirements with which industrial sources must comply in order to obtain a PSD permit. In addition to expanding to a full year the time allowed to EPA for review and approval of a permit application, provisions were also instituted that would possibly require a PSD applicant to collect a year of ambient air quality monitoring data prior to applying for a PSD permit.

Industrial sources seeking to locate or expand in non-attainment areas (NAA) (areas where the NAAQS for one or more pollutants are being exceeded) generally must undergo a new source review by the appropriate state agency in order to get a permit to build. EPA's Offset Policy Interpretive Ruling, issued in 1976, has guided the states in this situation. The 1977 Amendments endorsed this policy and required that states revise their implementation plans for NAA's by 1979 to address the issue of permitting new or modified sources in these areas.

Considerable concern has been expressed by the industry that the increasing permit requirements, especially those associated with the 1977 Amendments, will introduce substantial uncertainty and potential delays in the planning and construction of new facilities. While it is not possible to state what the effect of the permitting requirements will be in a particular situation, it is possible to examine the experience gained by the industry for those cases where permits have already been obtained. The purpose of this report is to summarize the industry's experience in obtaining permits, both PSD permits and permits to construct in NAA's.

III SCOPE

A general information questionnaire and case history description form (see Appendix A) were organized and distributed to a select group of companies in the industry who were likely to have obtained air quality permits for new or modified sources over the past two years or so. The solicitation was made in April 1979 for information on all permit applications submitted to EPA and/or state air pollution control agencies after August 7, 1977, the date of the Clean Air Act Amendments passage. Responses continue to be received since many of the permit applications are just now being approved. It is expected that there will be several more case histories available within the next year.

To date, detailed information on twelve PSD permit applications and two Non-Attainment Area (NAA) permit applications has been made available to the National Council staff. Most of the applications are for sources directly related to the forest products industry such as wood waste boilers, lime kilns or recovery furnaces. However, diversified companies with numerous types of manufacturing operations submitted a few case histories on PSD applications for these operations such as converted paper production, personal products manufacture, etc. These applications were included to broaden the limited data base.

A review of the completed questionnaire and case history descriptions indicated a broad range of experience with obtaining permits. For this reason, the information has been summarized in both a tabular form (listing the date of application, time elapsed to a "complete" application, time elapsed to permit approvals, an indication of problem areas encountered during regulatory agency review, and an estimate of the company and consultant time expended in permit preparation and response to reviewer's inquiries, if available) and in individual capsule case histories indicating the unique aspects of the particular case.

It should be noted that PSD permit applicants were faced with a great deal of uncertainty concerning permit requirements immediately following the enactment of the Clean Air Act Amendments on August 7, 1977. In order to put the questionnaire responses and case histories in proper perspective, it is appropriate to first review the history of the permitting requirements both before and after the 1977 Amendments.

IV BACKGROUND OF FEDERAL PERMITTING REQUIREMENTS

A. New Source Review Procedure Prior to the 1977 Clean Air Act Amendments

Prior to the 1977 Amendments, EPA had promulgated PSD regulations, which became effective on January 1, 1975, governing the review of new and modified sources in "clean air" areas. These regulations contained the so-called "PSD increments" for SO_2 and TSP and the Class I, II, III designations. The PSD regulations also required that major new or modified sources submit to EPA the following information (as a minimum): (1) site description, (2) plans, drawings, and specifications showing the design of the source, (3) sufficient data to determine the impact of the source on ambient SO_2 and TSP levels, including the PSD increments, and (4) a discussion of best available control technology (BACT) for SO_2 and particulate matter, and alternatives to the selected control technology. EPA then reviewed this information and would approve, conditionally approve, or deny approval for the construction and operation of a new source or modification. This approval is often referred to as "getting a PSD permit."

These early PSD regulations gave a timetable for EPA permit review. After a PSD permit application was received by EPA, EPA had 20 days to decide if all required information was included; if not, the applicant would be requested to submit additional information. Once the application was considered to be complete by EPA, EPA had 30 days to make a preliminary decision on approval or denial, and to publish this notice in local newspapers. Following a 30 day public comment period, the EPA Administrator had an additional 30 days to make his final determination. Thus, the entire EPA review and approval process would take no more than 90 days after the application was judged complete. It should also be noted that states could be delegated the authority by EPA to carry out the PSD new source review and issue PSD permits. A number of states applied for this authority, since most states had new source review programs in place, and several were granted the authority.

New or modified sources emitting a particular pollutant and locating in an NAA for that pollutant were in general subject to a new source review by the state. In late 1976, EPA published its emissions offset interpretive ruling, which provided that a new source locating in an NAA must (1) control its emissions of the particular NAA pollutant to the greatest degree possible, (2) obtain more than equivalent offsetting emissions from existing sources, and (3) assure progress toward attainment of the NAAQS. Unless these requirements were satisfied, a major source or modification could not obtain a construction permit. In many cases, a source would also need a PSD permit (for emitting other pollutants) prior to commencing construction.

B. New Source Review Procedures Specified by the 1977 Clean Air Act Amendments

In addition to changing the numerical PSD allowable increments for SO_2 and TSP, the 1977 Amendments significantly expanded the requirements for obtaining a PSD permit. A PSD permit application was to contain: (1) a BACT determination for all regulated pollutants emitted (as opposed to only SO_2 and TSP); (2) a demonstration that the source would comply with all NAAQS and PSD increments; (3) an evaluation of the source's impact on the newly designated

Class I areas, (4) an analysis of the ambient air quality for all regulated pollutants to be emitted by the facility, (5) if necessary, an analysis of ambient air quality monitoring data to determine the effect of the source's emissions on ambient air quality, and (6) an analysis of the air quality impacts of general growth associated with the new source. The 1977 Amendments also called on EPA to promulgate detailed regulations for PSD permit applications to include analyses of the meteorology, climatology, ambient air quality, terrain, soils, and visibility; to include an analysis of continuous ambient air quality data collected over a one year (or shorter) period preceding the date of the application; and to use only specified air quality models. Furthermore, the rigid timetable of 90 days for EPA review and approval of PSD permit applications was replaced with a provision for approval or denial of the completed application. States already having PSD permitting authority were allowed to retain the authority, but had to revise their new source review program to conform with the 1977 Amendments.

In November 1977 EPA proposed a new set of PSD regulations in response to the 1977 Amendments. These proposed regulations basically addressed the provisions of the 1977 Amendments, but with some notable modifications and additions. EPA proposed: (1) that uncontrolled emissions be the basis for determining the need for PSD review, (2) daily and hourly emission rates could trigger PSD review, (3) that a good engineering practice stack height review be conducted as part of the PSD application, (4) that ambient monitoring was only needed for criteria pollutants to be emitted at an uncontrolled rate of greater than 100 tons/year, and (5) that the new regulations would apply to all sources not having a finally approved PSD permit by March 1, 1978, except that the monitoring requirements would not apply until August 7, 1978. The proposed regulations were promulgated in June 1978, with a few significant changes.

The final June 1978 PSD regulations established a "Two-Tier" PSD review process. Major new or modified sources having allowable emissions of less than 50 tons/year would undergo a very limited EPA review (Tier I), while those major sources or modifications having emissions greater than 50 tons/year would be subject to the complete PSD review requirements (Tier II). The baseline concentration date, after which PSD increment consumption starts, was shifted from January 6, 1975 to August 7, 1977. Otherwise, the June 1978 regulations were quite similar to the November 1977 proposal. Once these regulations became final, they were challenged in court, but a preliminary ruling on their legality was not issued until June 1979. The final ruling was issued at the end of December 1979. A number of significant changes in the PSD program are expected when EPA promulgates its final regulations in response to the court decision. EPA has set a target date of June 1980 for promulgation.

With regard to new source review in NAA's, the 1977 Amendments generally endorsed the existing offset policy interpretative ruling and left the new source review and permit granting authority under the control of the states with EPA-approved State Implementation Plans (SIP's). However, the 1977 Amendments did call for SIP revisions for all NAA's by January 1, 1979. After July 1, 1979 EPA's enforcement of the offset policy was to be limited to those situations where (1) a source in one state impacts an NAA only in another state, or (2) during the period when an SIP is being revised for a newly declared NAA. Otherwise, the states would have the authority to grant permits for sources locating in or impacting on designated NAA's.

V SUMMARY OF COMPANY EXPERIENCE IN OBTAINING PERMITS

As mentioned earlier, a total of 14 detailed case histories have been made available to the National Council staff. Twelve of these are for PSD permits, while the remaining two are for permits in NAA's. An examination of the 14 case histories revealed a wide range of experiences in terms of regulatory agency review time, problem areas encountered, manpower expended, etc. It is important to remember that the PSD permitting procedure was undergoing a number of significant changes immediately following the enactment of the Clean Air Act Amendments on August 7, 1977. Thus, after this date PSD permit applicants were faced with changing and often conflicting requirements, both on a national and EPA Regional Office basis.

To get an overall picture of the industry's experience in obtaining air quality permits, tables summarizing the time involved, problem areas encountered, and requirements imposed have been prepared for PSD permits and NAA permits. These two tables cannot give a complete picture of the industry's experiences because many of the case histories have unique elements that are not conducive to a tabular format. Therefore, capsule summaries which describe the important unique aspects of each of the 14 case histories have also been included.

A. Tabular Summaries - PSD

Table 1 summarizes the twelve PSD permit case histories. The EPA Regional Office had the authority to issue the PSD permit except in two cases where a state had been delegated this authority by EPA. Four permits were processed by EPA Region VI, three by Region X, and one each by Regions I, III and VII. The case histories are listed in chronological order by date of initial application.

For those permit applications processed by EPA, EPA must initially review the application for completeness. Table 1 shows that anywhere from 30 to 190 days elapsed before applications were considered to be "complete", with a median elapsed time of about 60 days or 2 months. Once the application was "complete", from 107 to 405 additional days were needed to receive final permit approval, with a median of around 160 days (about 5 months). For all twelve applications, the total time elapsed from initial permit application to final approval ranged from a minimum of 5 months to a maximum in excess of 17 months, with a median of about 8 months. Only two applications were approved within six months, but three applications took over twelve months. In two of these three cases, the mandatory one year approval deadline specified in the 1977 Amendments was exceeded. There are not enough cases to draw any conclusions about the length of the permitting processes among the different EPA regions. If available, the number of months required to obtain a state air quality permit is also listed. State permits are generally required as part of the state's new source review program. In some cases, the time to get the state permit was significantly less than that needed to get the PSD permit from EPA.

Table 1 also contains a listing of five potential problem areas that might affect the regulatory review and approval process: (1) determination of best available control technology (BACT), (2) state/EPA permit review coordination, (3) PSD increment consumption, (4) determination of PSD baseline ambient concentrations, and (5) air quality modelling. The submitted case history descriptions were reviewed for references to these problem areas. If the problem area was not mentioned, or no difficulties were noted, a negative response has been entered in the table. A question mark indicates the case history was incomplete and a "yes" entry in the table implies there were at least minor difficulties. The most significant problem area is that involving BACT determinations, with at least six of the twelve case histories mentioning this area. Those PSD applications with no BACT problem, or those where a BACT review was avoided by limiting emissions to less than 50 tons/year, were approved more quickly than those where BACT selection was an issue. There were two cases where air quality modelling posed a problem; both of these cases involved complex terrain. In one case, the evaluation of baseline concentrations and PSD increment consumption was an issue, mainly because a second PSD application for another source in the immediate area was submitted. One applicant encountered difficulties because of conflicting state and EPA permitting requirements and procedures.

The requirements for a PSD permit applicant to submit an analysis of ambient air quality monitoring data became effective for all "Tier II" applications submitted after August 7, 1978. If the applicant must conduct an ambient monitoring program, a substantial amount of lead time prior to submission of the application is needed. Referring to Table 1, it can be seen that nine of the twelve applications were submitted prior to August 7, 1978. Only one of the three applications submitted after this date was a "Tier II" application requiring ambient monitoring.

The last two columns of Table 1 list the company and the consultant manpower associated with preparing the PSD permit application and responding to requests made by the regulatory reviewing agencies. The amount of time expended is quite variable, ranging from a low total of two man-months to a high total of 38 man months, with a median value of approximately 11 man months.

Although the questionnaire respondents were asked to estimate the economic impact of delays and project changes that occurred because of the PSD permitting process, it was found that while these impacts are generally thought to be significant, they are not readily quantified in terms of dollars.

B. Tabular Summaries - NAA

The two available case histories for obtaining permits in NAA's are summarized in Table 2. Both of these permits were obtained from a state agency. In one case the elapsed time was about seven months, and three months for the other. The determination of lowest achievable emission rate (LAER) was only a problem in one case. Air quality modelling was not a problem, and ambient monitoring was not required. Offsets were obtained by reducing the firing rate of two older boilers in one situation, while paving a dirt road provided the necessary offsets in the other case. Two man months were involved in preparing the one application; manpower estimates were not provided for the other case.

C. Individual Case Histories

A capsule summary of the key elements and unusual aspects of each of the 14 case histories follows. These summaries give some insight into particular problem areas that have been encountered in the past and indicate potential items for future regulatory streamlining.

(1) Case History No. 1 - An expansion of an existing facility in a relatively remote area had been planned for about two years, so ambient air quality data had been collected by the source and were submitted as part of the PSD application. The EPA Regional Office essentially processed the application under the 1975 PSD timetable. A five week delay was encountered before the final permit was issued because of a national lawsuit against EPA over the administrative aspects of the PSD program.

(2) Case History No. 2 - After the application for a PSD permit for a hog fueled boiler was submitted, the EPA reviewers questioned the BACT determinations and required much additional information. Apparently the BACT issue was a significant factor in the long period from initial submittal to EPA's acceptance of the application as "complete".

(3) Case History No. 3 - The EPA Regional Office advised the applicant shortly after the application was submitted that it would be processed under the new PSD regulations. Although the final regulations were due on March 1, 1978, they were not promulgated until June 19, 1978. This contributed to the amount of time elapsed before the application was considered to be "complete" on June 22, 1978. EPA also would not accept the consultant's air quality model and made the applicant use an EPA model (the source is in complex terrain). After the application was "complete", the issuance of the permit was delayed within EPA because of personnel vacations which delayed the notice for public comment and clerical problems that slowed the typing and signature of the final permit. These internal EPA delays consumed about two months. Overall, the applicant estimated four months of unnecessary delay at a cost of $1,300,000.

(4) Case History No. 4 - A new, large unit was going to be installed as a replacement for some older, smaller units at an existing facility. Five weeks after the initial application was submitted, the final PSD regulations were promulgated, which necessitated a number of changes in the application before EPA would consider it "complete". There was also some confusion about the use of actual versus allowable emissions in the determination of baseline concentrations and increment consumption. After the close of the public comment period during which no comments besides the applicant's were received, an unexplained seven week period elapsed before the final permit was issued. After the permit was issued, a second PSD permit application for a new industry in the immediate area was submitted by another company. Once again, the questions of actual versus allowable emissions were raised. It appears that further review of the approved PSD permit will be necessary to resolve the issue of which emissions actually consume PSD increment.

(5) Case History No. 5 - This PSD permit was issued by a state agency. The state agency indicated to the applicant at the outset that the permit could be processed within six months on a "fast track" if desired, but the applicant declined. Questions were raised by the EPA Regional Office about the BACT determinations for NO_x and SO_2, necessitating an additional showing by the applicant that a lower sulfur content fuel would not be BACT. It was noted the public comment period constituted about 90 days of the review procedure.

(6) Case History No. 6 - This PSD permit is being processed by a state agency. The EPA Regional Office requested additional information on the BACT determinations for SO_2 and NO_x emissions. Because the process is still in the development stages, the applicant feels that the final process and emissions controls selected for PSD purposes may be significantly changed prior to actual construction, thus requiring a resubmission of the application and additional permitting time.

(7) Case History No. 7 - An expansion of existing facility was planned where the uncontrolled emissions would be greater than 250 tons/year, but the controlled emissions less than 50 tons/year. Since the company expected additional future expansions, EPA was requested to do a Tier II review as opposed to the simpler Tier I review. EPA agreed to do the Tier II review. EPA questioned the BACT determination of 85% control and wanted further justification as to why 90-95% control was not feasible. The applicant then had to do further engineering and economic studies to satisfy EPA. The EPA permit reviewers were also changed twice during the review, contributing to the prolonged reivew time. One year after the initial application, EPA requested that the applicant accept a Tier I review because of a backlog of other permit applications. EPA stated that an additional three to four months would be needed to complete the Tier II review, which would bring the total elapsed time from initial application submittal to final approval to 15-16 months.

(8) Case History No. 8 - A major new facility in a rural area was planned. After EPA judged the application to be "complete", a number of requests for additional information and air quality modelling calculations were received by the applicant from a consulting firm hired by EPA to review the application. BACT determinations for SO_2 emissions from coal-fired boilers (low sulfur coal vs. FGD) were questioned. Coal storage, coal handling, and lime handling BACT determinations were requested. Opacity limitations required resolution. The applicant cited a large number of telephone calls necessary to "push" the application through EPA and its contractor. Problems were encountered with personnel vacations, missed deadlines, intraagency coordination, etc. The applicant thought the EPA Regional Office was not equipped to handle the large number of PSD permit applications submitted, and noted that the state permit was issued nearly six months before the PSD permit.

(9) Case History No. 9 - A new piece of equipment was going to be installed to replace some older equipment. The permit was applied for just prior to the deadline for including an analysis of ambient air quality monitoring data. However, as part of the state-required operating permit, an ambient air monitoring program was begun in May 1978. Before the PSD application was considered "complete", EPA requested additional information on BACT for NO_x and CO, good engineering practice stack height, and impacts on a Class I area. After the application was judged "complete", logistical problems emerged in getting the Class I Federal Land Manager's timely approval and a certification from the Interior Department that no endangered species would be affected. The applicant noted that substantial prodding of the EPA Regional Office was necessary to keep the review process moving, and felt that EPA's lack of experience in processing PSD permit applications (this was the first PSD permit issued by this Region) contributed to the length of the review process.

(10) Case History No. 10 - A particular operation was to be moved from one location to a new location several miles away. A PSD prmit was needed because the uncontrolled emissions would exceed 250 tons/year. The applicant elected to control emissions to less than 50 tons/year in order to get a Tier I review.

(11) Case History No. 11 - No particular problems were cited by the applicant except for the long time taken by EPA for a single expansion which would result in a net decrease in emissions.

(12) Case History No. 12 - A new facility with the potential to emit more than 250 tons/year uncontrolled emissions but less than 50 tons/year controlled emissions applied for a state permit and a PSD permit. EPA would not proceed with the Tier I PSD review until the state permit was granted. The state permitting procedure took longer than normal because the level of controlled emissions would not normally require a state permit.

(13) Case History No. 13 - A new piece of process equipment was to be installed at a facility located in an NAA. State regulations already in place specified the allowable emission rate and also

required one-for-one offsets. The applicant decided the most economical offsets could be obtained by paving a dirt road. Uncontrolled emission rates of less than 10 lb/hr were involved.

(14) Case History No. 14 - A new boiler was to be installed in an NAA for particulate matter. The applicant committed to extremely tight emission limitations in order to avoid permitting delays. More than one-for-one offsets were obtained by limiting the firing rate of older boilers. Although a PSD permit for boiler NO_x emissions was also needed from EPA, the state coordinated the PSD application and BACT determination with the EPA Regional Office. The PSD permit was approved 22 days after the state permit was granted.

VI CONCLUSIONS

Based on the 14 available case histories, it can be concluded that there has been a wide variety of experience in obtaining air quality permits for new and modified sources since the passage of the 1977 Clean Air Act Amendments. The median elapsed time from initial permit application to final permit approval is on the order of eight months, with a range of three to over seventeen months. The most significant problem area encountered during the regulatory review process appears to be the BACT determination, which must be done on a case-by-case basis. The diverse nature and limited number of case histories precluded comparisons of permitting times among the various EPA Regional Offices and states with total permitting authority. Also, a discernable trend in total permitting time from 1977 to the present was not detected. All of the PSD permit applicants felt that the regulatory agency review of their PSD applications did not result in any additional environmental benefits.

However, the recent Alabama Power preliminary court decision invalidating certain provisions in EPA's 1978 PSD regulations, coupled with EPA's proposed September 1979 revised PSD regulations, seems certain to make the PSD review process more time consuming. The provisions calling for (1) a BACT review for all regulated pollutants, (2) modifications resulting in a net increase of more than 10 tons/year of emissions of most regulated pollutants to undergo PSD review, and (3) an analysis of the ambient air quality for all regulated pollutants (which may involve a one-year long ambient monitoring program by PSD permit applicants) have the potential to significantly lengthen both the pre-application manpower requirements of an applicant and the amount of agency manpower required to review and process the application.

Companies contemplating expansions or modifications that will require a PSD permit should carefully consider the implications of ambient air quality monitoring requirements. An ambient monitoring program first involves the selection of monitoring locations, the ordering of meteorological instrumentation and air quality analyzers, and setting up a quality assurance program. Although the permit granting authority must only formally approve the quality assurance program, a review of the entire program with the regulatory staff before implementation may minimize subsequent permit review delays. After the program undergoes a shakedown period, a one year period of good data collection may be needed. Next, an analysis of the monitoring data must be performed and then included as part of the PSD permit application. This whole procedure may consume 18-24 months and require considerable manpower. Considering the one-year maximum time allotted to the regulatory agency for permit review and approval, a total time of 2.5 to 3 years may be needed to secure a PSD permit when ambient monitoring is required. Thus, establishing an ambient monitoring program at a mill site where future expansions are likely may be a prudent investment in terms of more quickly obtaining permits at a future date.

TABLE I

SUMMARY OF EXPERIENCE IN OBTAINING PSD PERMITS

Case History No.	EPA Region	Date of Initial Application	Days To Complete Application	Days to Permit From Completed Application	Total Months Elapsed	Months To Get State Permit	PROBLEM AREAS: BACT Determination	State/EPA Coordination	Increment Consumption	Baseline Determination	Air Quality Modelling	Ambient Monitoring Required	TIER (If Applicable)	Man-Months Expended: Company	Consultant
1	X	11/10/77	38	107	5	4	No	No	No	No	No	No[1]	-	6	5
2	VI	3/22/78	190	164	12	1	Yes	No	No	No	No	No	-	3	3
3	X	3/31/78	83	130	7	10[2]	No	No	No	No	Yes	No	-	11[9]	-
4	X	5/12/78	80	137	7	7[2]	No	No	Yes	Yes	No	No	-	6	6
5	(3)	7/7/78	N/A	N/A	N/A	11	Yes	No	No	No	No	No	-	(6,9)	-
6	(3)	7/7/78	N/A	N/A	N/A	>17[4]	Yes	No	No	No	No	No	-	(7)	(8)
7	VII	7/7/78	30	-	>17[4]	?	Yes	No	No	No	No	No	II	?	?
8	VI	7/14/78	63	405	16	2	Yes	No	No	No	No	No	II	10[9]	-
9	I	8/4/78	60	185	8	3	Yes	No	No	No	Yes	Yes[5]	II	31	7
10	III	12/28/78	56	141	7	6	N/A	No	N/A	N/A	N/A	N/A	I	1	1
11	VI	1/9/79	42	~150	6	2	No	No	No	No	No	Yes	II	4[9]	-
12	VI	1/15/79	31	169	8	4	N/A	Yes	N/A	N/A	N/A	N/A	I	4[9]	-

Footnotes:

(1) Monitoring not required, but data submitted with application
(2) State and EPA coordinated issuing of permits
(3) State had PSD authority
(4) Permit not issued as of 12/31/79
(5) Required by State, data not part of PSD application
(6) Total costs $63,000
(7) Total cost $15,000
(8) Total cost $17,000
(9) Total company and consultant

TABLE 2

SUMMARY OF EXPERIENCE IN OBTAINING NAA PERMITS

Case History No.	Date of Initial Application	Months To Get Permit	PROBLEM AREAS				Man-Months Expended	
			LAER Determination	Air Quality Model-ling	Ambient Monitoring Required	Offsets	Company	Consultant
13	10/77	7	No	No	No	Pave Dirt Road	7	7
14	5/19/78	3	Yes	No	No	Limit Firing-Rate of Older Boilers	2	-

APPENDIX A

GENERAL INFORMATION QUESTIONNAIRE
AND
CASE HISTORY DESCRIPTION FORMS

ncasi
NATIONAL COUNCIL OF THE PAPER INDUSTRY FOR AIR AND STREAM IMPROVEMENT, INC.
260 MADISON AVE. NEW YORK, N.Y. 10016 (212) 532-9000

QUESTIONNAIRE

GENERAL INFORMATION

1. Since August 7, 1977:

   (a) How many PSD permit applications initiated ______
   (b) How many PSD permit applications issued ______
   (c) How many permit applications initiated where facility located in or impacted on a non-attainment area ______
   (d) How many permit applications issued in non-attainment areas ______

2. Have you been approached by any other company seeking either to purchase your emission rights or to install equipment at your locations for offset purposes? Yes___ No ___

3. Has compliance with any set of requirements under the Clean Air Act subjected you to compliance with another set of regulations? (Example: installation of control equipment to meet a state requirement causing you to require a Federal PSD permit). Yes___ No ___

4. In any of the cases where you have obtained PSD or non-attainment permits, how would you describe the resultant levels of control? (Check one).

   ______ Significantly more control was required than we proposed.
   ______ About the same control was required after the permit process as we proposed at the outset.
   ______ We were required to install less than we had proposed at the beginning of the process.

5. Have you found any sites or construction opportunities foreclosed because of increment consumption by other developments, or by existing sources leaving too little room above the ambient standards? Yes___ No ___

6. Has the company been hampered or delayed in implementing utilization of non-fossil fuel as a result of the PSD, non-attainment, or other provisions of the Act? Yes___ No ___

7. Have you seen examples of inconsistencies in regulation interpretation by EPA officials from region to region? Yes___ No ___

8. Have you found that state or EPA officials have a sufficiently clear understanding of the Act's requirements to avoid delays in the permitting situation? Yes___ No ___

9. Have you found sufficient conflicts between state and Federal permitting requirements to result in decreased permitting time and expense? Yes___ No ___

Person to contact for further information ______________________

Date completed ____ _____

ATTACHMENT 2

CLEAN AIR ACT CASE HISTORY

Company____________________ Mill Location____________________

Should the company/location information be kept confidential? ___

Points illustrated by the case______________________________

____

____

Prepared by______________________ Phone No.______________

Address____

Case History Experience - PSD________ Non-Attainment__________

Company Case History Number____________

The discussion of the case should include those elements in in the enclosed form such as (a) the size and nature of the project, (b) where experience has been developed for comparisons with the normal cost and timing without the new Clean Air Act requirements (whether the problem stemmed from the defined review period called for in the regulations or delays beyond the defined review period). Your attention is directed to the schematic on the enclosure for guidance in defining the delays, if any, in the PSD permitting process. This schematic illustrates the time frame allocations for PSD permitting in existing regulations. In theory the PSD permitting can be carried out in just over two years. The case history for PSD review should address the time involved in obtaining approved monitoring plans (which is prudent but not required), delay in agency review, etc.

Case number or location ______________________________

Project (brief description)______________________________

____

(1) Chronological Table of Events (Use separate sheets if necessary)

____

____

____

____

(2) Was ambient monitoring required? Yes ________ No ________

(3) What was BACT or LAER determined to be ______________________________

____

(4) Discussion of problems and reasons for delays, if any ________

____

____

____

(5) Discussion of facilitating developments. Any changes in state or federal requirements since 1975 which have simplified the permit process?

____

____

____

(6) Economic impact on company of delays and project changes necessitated by regulations promulgated under Clean Air Act Amendments of 1977

____

____

____

(7) Environmental benefits or improvements, if any, brought about by delays and project changes necessitated by Clean Air Act Amendment regulations ______________________________

____

(8) Estimate of company employee and consultant time invested in the permit process ______________________________

(9) Recommended solutions/improvements ______________________________

____

____

[Whereupon, at 4:40 p.m. the hearing was adjourned.]

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